

American Cinematographer

DECEMBER 1998

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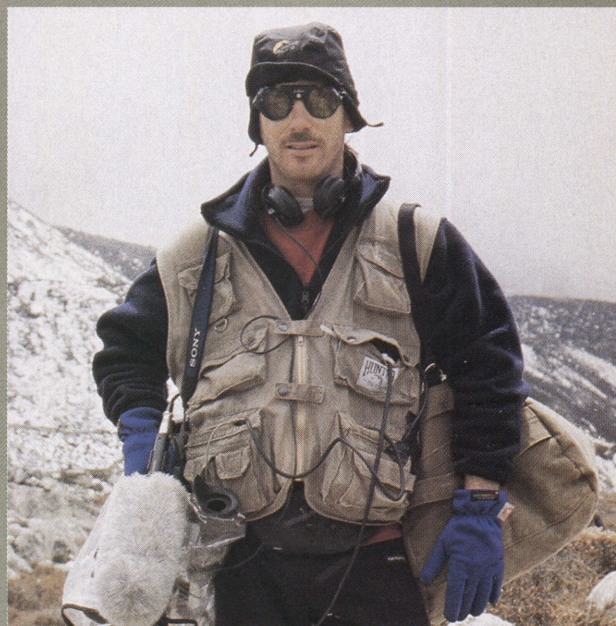
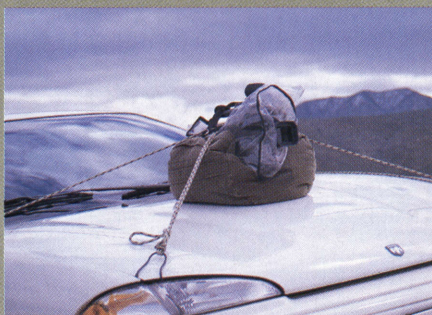
His film shows how the Cinesaddle mounts in seconds to cars, helicopters, bicycles, boats, blow up rafts, skateboards or any object that moves.

It also shows how, with it, you can do dolly and crane shots.

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Rick Young - Europe, Digital Production

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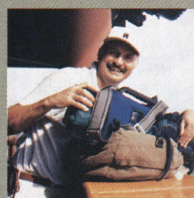
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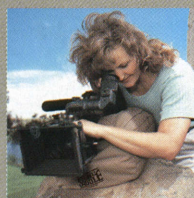
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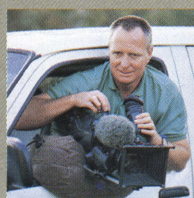
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On Our Cover:
A melancholy Hannah (Gena Rowlands) ponders her decision to remarry her husband on their 40th anniversary in *Playing by Heart*, an ensemble drama directed by Willard Carroll and photographed by Vilmos Zsigmond, ASC (photo by Peter Sorel, courtesy of Miramax Films).

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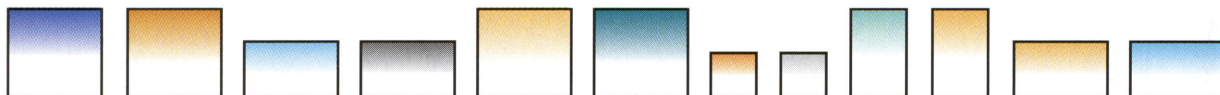
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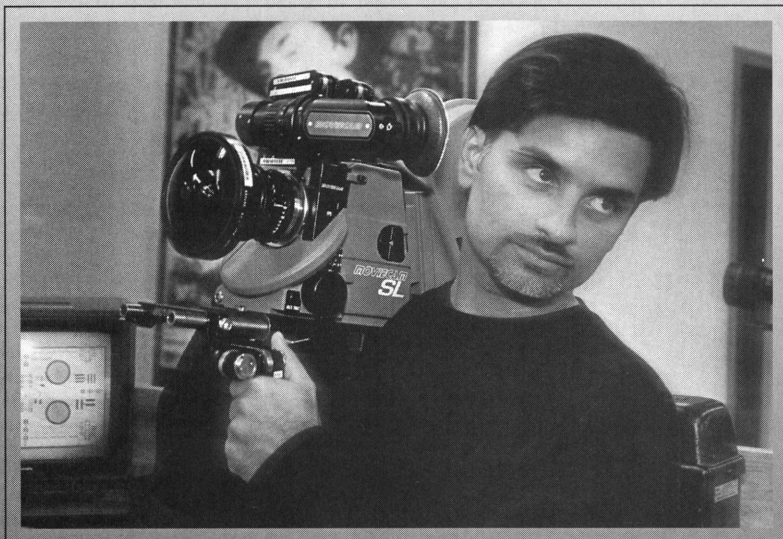
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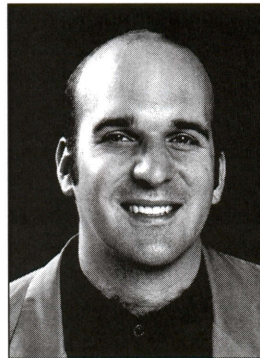
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Editor's Note



As avid *AC* readers know, our December issue traditionally dissects some of the year's most interesting visual effects. In 1999, however, we will be exploring this increasingly important topic in our August issue, when many of the year's biggest effects extravaganzas are still being released.

Given this strategic shift, we sought to ensure that our final year-end effects review would offer enough diversity to whet your appetite for the new midsummer coverage. Visual effects editor Ron Magid came through with flying colors in a special section that begins on page 55. Things start off with a bang in a detailed examination of the gripping D-

Day sequence from *Saving Private Ryan* (p. 56). Director Steven Spielberg and his top-notch team of illusionists offer exclusive commentary about their artful blend of digital trickery and traditional special effects, which resulted in one of 1998's most powerfully cinematic sequences.

Although the legerdemain in *Private Ryan* was intended to simulate the horrors of actual combat, many of the year's best effects were designed to simply entertain. In *Godzilla* (p. 67), Joe Viskocil used his pyrotechnical expertise to blast Manhattan into near-ruin; perhaps the Big Apple's cabbies will be more courteous during Joe's next visit. Smaller creatures than *Godzilla* also benefitted from the latest technical tricks, as *Dr. Dolittle* (p. 73) proved that Babe the Pig is not the only critter who can hold up his end of a conversation. Finally, *Practical Magic* (p. 77) gave Cinesite Los Angeles a chance to add supernatural spice to a wry romantic comedy.

Of course, not every production can afford to booby-trap an entire Irish beach or boot up state-of-the-art software. Filmmakers with more limited budgets will draw inspiration from cinematographer Philip D. Schwartz's account of his work on *King Cobra* (p. 84), a cost-conscious shocker that finds some creative ways to frighten the audience.

For those of you who pine for the days when every cinematic fantasy was accomplished in hands-on fashion, George Turner's historical piece on *The Wizard of Oz* (p. 100) reveals the venerable trade tricks that were used to craft an all-time classic. And on page 107, Bob Fisher tells us how modern technology helped to restore the glorious hues of the Ruby Slippers, the Yellow Brick Road, the Emerald City, and even the Wicked Witch of the West's ghastly green complexion.

On the photography front, this issue offers Alar Kivilo, CSC's thoughts on *A Simple Plan* (p. 40), as well as the latest insights from Vilmos Zsigmond, ASC, whose considerable wisdom and keen eye lends a romantic mood to the modestly budgeted *Playing by Heart* (p. 28). Zsigmond is also one of the cinematographers whose still photography has been featured in an ongoing exhibition at the New Alchemy Gallery in Los Angeles. For those readers who can't make it to town, assistant editor Andrew Thompson's article "Still Lives, Distant Vistas" offers an illustrated tour of this exciting series.

Sincerely,

Stephen Pizzello
Executive Editor

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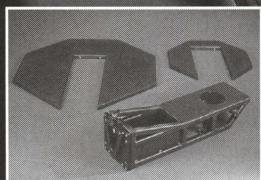
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Digital Perspectives

DVD Comes of Age

by Frank Beacham

A decade ago, researchers at the Massachusetts Institute of Technology's Media Lab coined the term "paperback movie" to describe a shiny five-inch disc which could store and play back an entire feature film. Originally, the idea was for this distribution medium to be so cheap (like paperback books) that viewers would only be charged the cost entailed in licensing its cinematic content.

But that future is now, and paperback movies have become DVDs. After years of marketing efforts aimed their way, home-video buffs are finally beginning to appreciate the benefits of this low-cost, high-quality distribution medium.

To get a glimpse of the format's potential, look no further than Columbia Music Video's new DVD release of James Taylor's concert last May at New York City's Beacon Theater. When experienced under optimum conditions, this new home-entertainment release (the first made specifically for DVD) cuts through miles of techno-hype and clearly demonstrates the potential of digital-television technology.

While viewing some of the Taylor concert during its initial live broadcast on PBS, this writer found it to be an agreeable event. However, the very same performance was amazingly intensified when experienced via the 5.1-channel Dolby Digital Sound version in a Sony screening room in New York City.

This DVD is *not* high-definition video, mind you, but it *is* high-definition sound, and that total sonic immersion gives one the sensation of sitting six feet from the performer during a live concert.

Early adopters of DVD apparently like the experience — hence its good word-of-mouth. More than a half-million

DVD players have been sold in the U.S. so far, and that number is expected to nearly double by year's end.

DVD software sales are also taking off. Sony Music estimates that it has sold more than 7 million DVD titles. Such an upswing is resulting in a flood of new releases, and more than 2,000 DVD titles are currently available.

DVD is now moving into video-rental stores — a necessary transition if the format is to expand beyond its core market of high-tech videophiles. Blockbuster Video has begun renting DVD titles in 500 of its major stores. All participating outlets will have approximately 350 DVD titles for rent and 150 titles for sale. In addition, DVD players will be available for rent through a partnership between Blockbuster and Philips Electronics.

According to Dean Wilson, Blockbuster's executive vice president of merchandising, the video retailer's rollout should soon be complete. "We have been testing DVD product in approximately 100 stores since April 1997," he says. "As a result, we have determined that now is the time to roll out DVD even further."

For those DVD fans not living in major cities, software rentals are available over the Internet. Sony has entered a marketing arrangement with NetFlix.com, an online DVD-rental store. All sorts of promotions are being planned for the format's aficionados, including a "Sony Club DVD."

There's also been a burst of innovative new DVD hardware. Two examples are Sony's new DVP-C600D DVD Carousel Changer — a component that mixes five DVDs or CDs — and a portable viewing system that features

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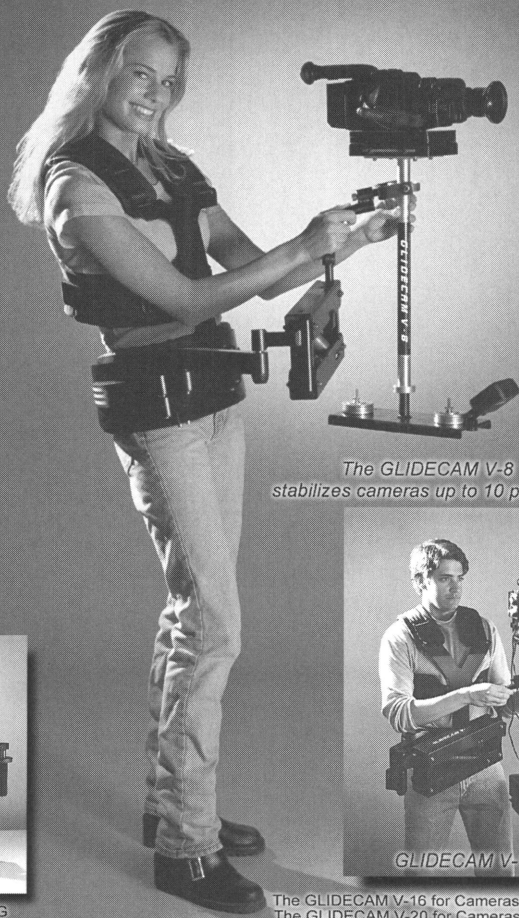
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Sony's new Glasstron home-theater headset. Resembling space-age goggles, the Glasstron headset weighs a few ounces and offers a virtual 52-inch video display for personal viewing. It's coupled with Sony's DVD portable Discman in a package that sells for less than \$1,300.

The growing sales of DVD hardware and software have not escaped the eyes of major motion-picture studios, most of which are supporting the format. Ditto for electronics retailers, who have seen DVD player prices drop to as low as \$299, and anticipate that the tags will be as low as \$199 in the near future.

A potential dark cloud for DVD is Divx, a competing disc-based digital video format for which the viewer pays for each usage of encrypted movies and programs. Divx has just begun its national rollout, however, and fewer than 200 Divx titles are currently available.

The appeal of this format is supposed to be that viewers do not have to physically return the disk to a store after viewing it, but Divx did not test well in initial markets. After the first play or a designated period of time, the Divx disc simply stops working. For additional viewings, the consumer connects the Divx player to a telephone line and pays via a credit-card transaction.

The popularity of DVD has surged with the advent of digital-television broadcasting. Ironically, a compromise in the DTV standard has left DVD with higher sound quality than that delivered by broadcasters when transmitting 5.1 Dolby Digital sound.

In a presentation made earlier this year, Sony technology chief Peter Dare noted that the bit rate on DVD is 484 kbps, while that of DTV maxes out at 382 kbps. "It's criminal, but it's what we've got," Dare said. "A man with golden ears can hear the difference." ■

Frank Beacham is a New York City-based writer and media producer. Visit his web-site at <http://www.beacham.com>. Mail: 163 Amsterdam Ave. #361, New York, NY 10023. E-mail: frank@beacham.com

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Production Slate

compiled by **Andrew O. Thompson**

Right: Queen Elizabeth I (Cate Blanchett) enters the royal court, backed by her ladies-in-waiting.

Center: The uncrowned Elizabeth undergoes interrogation by her crazed half-sister, Queen Mary Tudor (Kathy Burke).

Below: Her highness enjoys the affections of Lord Robert Dudley (Joseph Fiennes), a would-be suitor who succumbs to treachery.



For Queen and Country by Michele Lowery

In an era rife with religious persecutions, royal court conspiracies and factional fighting, *Elizabeth* follows one woman's journey from naïve maiden to monarchical maven. This dark period piece is marked by beautiful, often brutal imagery, and is the first feature which Indian filmmaker Shekhar Kapur (*Masoom*, *Mr. India*, *Bandit Queen*) has helmed in the Western



world. In terms of directorial style, Kapur says that he had to decide whether or not to "become English, in the way that [Chinese filmmaker] Ang Lee did when he made *Sense and Sensibility*, or to make *Elizabeth* through the eye of my own culture, which is very Eastern." Out of consideration for the turbulent and savage incidents that led to Elizabeth Tudor's ascension to the throne in 1558, Kapur opted for an Eastern aesthetic. "By being English, I would have had to seize the melodrama and soften it. By being Eastern, I could play up the melodrama in its colors, light, behavior patterns, storytelling and sense of chaos — I could make it a little mythic."

Elizabeth is certainly notable for its sense of mythic melodrama. The film opens with an overhead shot of Protestant martyrs having their heads shaved, and then being tied down to posts that are set ablaze. As the flames consume the helpless victims, a crane-mounted, remote-controlled camera careens above and around the smoldering pyre. Says Kapur, "The use of the overhead shots was actually designed to throw away the comfort factor of the viewers, who have gotten accustomed to a certain type of film grammar. It's [symbolic of] a handshake between the filmmaker and the audience on how to view violence."

Even though they were protected by fireproof suits, the actors had to withstand considerable discomfort amid an inferno of gas-controlled flames. Cinematographer Remi Adefarasin, BSC recalls, "The heat was so hot that in the rushes you could actually see steam rising from the costumes. On one downward looking shot, the flames actually got so high that the filter on the camera cracked. In the last shot there are three stuntmen wearing [fire-retardant] masks over their heads to allow them to be totally engulfed in flames. We had to digitally enhance the flames to mask the shape of their heads and make it look as if they were really frying."

Adefarasin, whose credits include *Truly Madly Deeply*, *Sliding Doors*, *Hollow Reed*, the upcoming *Eugene Onegin* and second unit on *The English Patient*, began his career in 1968 working for the BBC. He earned two BAFTA nominations for his work on the BBC productions *Christabel* and *Memento Mori*. The cameraman is currently on location in Turkey shooting a new version of *The Arabian Nights*.

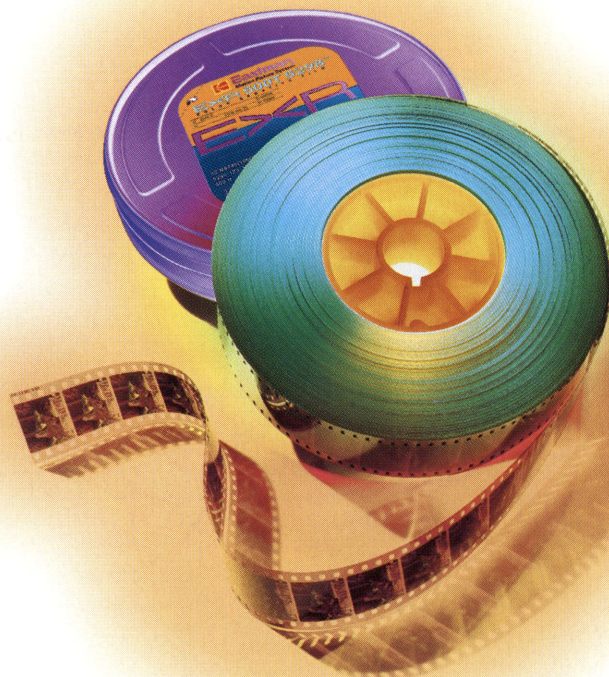
Beyond his appreciation for Adefarasin's cinematographic abilities,

Photos by Alex Bailey, courtesy of Gramercy Pictures.

18 Broadcast Formats

	Vertical Pixels	Horizontal Pixels	Aspect Ratio	Frame Rate	Sequence
1.	1080	1920	16:9	23.97/24.0Hz	Progressive
2.	1080	1920	16:9	29.97/30.0Hz	Progressive
3.	1080	1920	16:9	29.97/30.0Hz	Interlace
4.	720	1280	16:9	23.97/24.0Hz	Progressive
5.	720	1280	16:9	29.97/30.0Hz	Progressive
6.	720	1280	16:9	59.94/60.0Hz	Progressive
7.	480	704/720	4:3	23.97/24.0Hz	Progressive
8.	480	704/720	16:9	23.97/24.0Hz	Progressive
9.	480	704/720	4:3	29.97/30.0Hz	Progressive
10.	480	704/720	16:9	29.97/30.0Hz	Progressive
11.	480	704/720	4:3	59.94/60.0Hz	Progressive
12.	480	704/720	16:9	59.94/60.0Hz	Progressive
13.	480	704/720	4:3	29.97/30.0Hz	Interlace
14.	480	704/720	16:9	29.97/30.0Hz	Interlace
15.	480	640	4:3	23.97/24.0Hz	Progressive
16.	480	640	4:3	29.97/30.0Hz	Progressive
17.	480	640	4:3	59.94/60.0Hz	Progressive
18.	480	640	4:3	29.97/30.0Hz	Interlace

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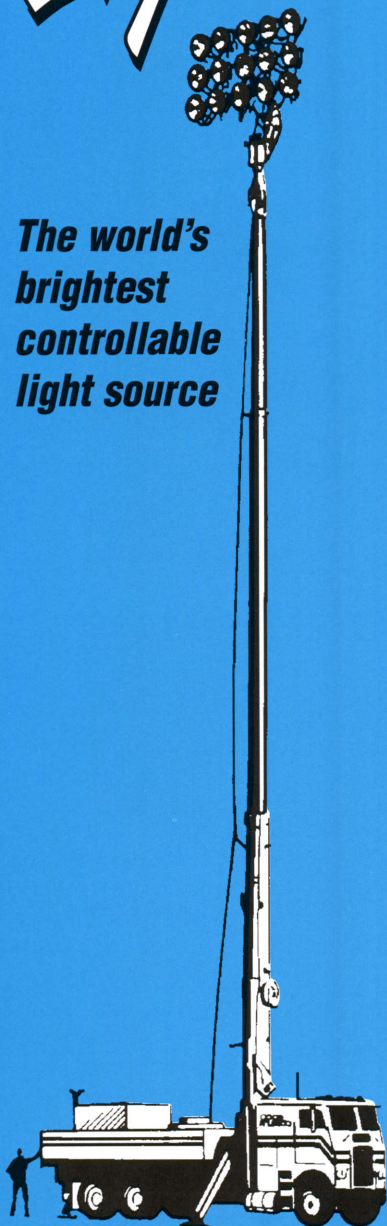
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Kapur found that he and his cameraman shared the same sense of the tale's emotional philosophy. "The first time I met Remi," the director remembers, "I told him about the pains of being Elizabeth, and he actually sat down and cried. On that day, I decided that he would be my director of photography."

The opening sequence's circular, overhead shots establish one of the film's main visual motifs — the moving camera. Aside from enhancing the depth within interiors, the perpetual motion signifies the absolute insanity of Queen Mary (Kathy Burke), who is one of many with dastardly designs against the future monarch. "Elizabeth was operating in a situation that was totally conspiratorial," Kapur relates. "I wanted to represent that the air was thick with conspiracy, so I decided to make the camera 'the main conspirator.' In my mind, what defined the way the camera moved was the fact that it was like a serpent always waiting to strike. It's constantly looking, and one never quite knows whether it's watching you." It's not until the film's end — after the wizened Elizabeth quells the threatening plots — that the camera ceases its snakelike movements and, according to Adefarasin, "becomes more static and, at the Queen's level, more reverential."

A co-conspirator in this cloak-and-dagger visual style is Adefarasin's shady lighting design: faces are cast in shadow; faint firelight hails from torches and candles; and blown-out sunlight streams from windows set within blackened stone walls. "We had flame bars powered by propane gas fixed to the wall with little invisible pipes," notes Adefarasin. "For my candlelight, we used large sources that we dimmed down. We also used varying amounts of CTO to make the film lighting the exact same color as the candle flames — sometimes using nearly a full CTO on a tungsten light. [A flicker effect] is not very realistic when you have more than one source. If you had only one candle lighting a room and there was a draft, then the light would flicker. But the light doesn't really flicker if you have five or six candles. Any flicker that you see

actually comes from real flames that are in or just out of shot."

As a blueprint for lighting *Elizabeth*, the director drew Adefarasin's eye to a mode of contrast conceived by 17th-century artist Rembrandt. The Dutch painter would often brighten the middle of a canvas for dramatic intent, letting surrounding areas gradually fade into blackness. Explains Kapur, "Your eye is focused on the center, which is very dramatically lit. But moving away from the center, you find yourself going into areas of darkness and infinity. With that infinite area, Rembrandt is saying that perhaps God is in control and human beings are not. Of course, the lighting patterns change as Elizabeth overcomes the conspiracy. And at the end [during her coronation, when she's clad in couture of pure white], she emerges out of bright light."

Overall, *Elizabeth* is characterized by dark, dingy illumination punctuated by bits of brightness. Adefarasin employed Kodak's Vision 500T 5279 stock because its latitude "makes images of this period look more real. You can overexpose certain areas and still hold detail. It's grainy but it has a quality that isn't as crystal clear as the slower emulsions." However, Adefarasin did not want to tire the audience with a perpetually pitch, if nevertheless naturalistic, ambience. To add texture to the shadowy lighting, he often sculpted his imagery in a somewhat unorthodox manner. "I tried to find any reason to shoot through glass, sheer nets, fabrics, flames or anything bizarre. This gives a slightly different impression that refracts the image so it's not crystal clear. When you see an image that it is too well-defined, your brain stops you from looking at it — whereas you become more interested if the image is held back a bit." In the film's final scene, the newly crowned queen presents herself to a shocked court with a head of shorn scarlet locks — an indication that's she re-created herself as the icon of the virgin monarch. Adefarasin heightened actress Cate Blanchett's natural beauty by photographing her reflection in a piece of polished metal,



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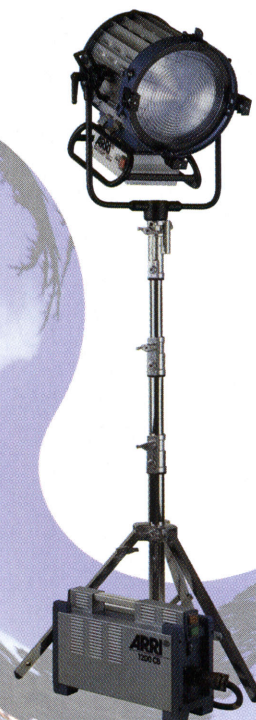
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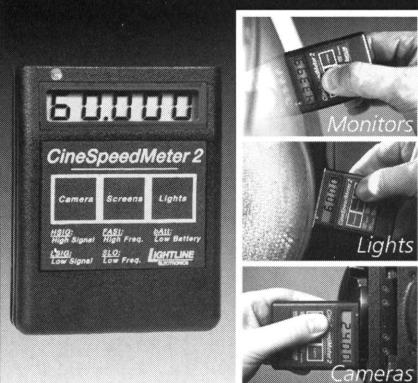
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an object used as a vanity mirror in the Elizabethan era.

Besides shooting through fabrics, Adefarasin also softened the sheen emanating from fixtures with such clothing materials as wool, silk, lingerie and hand-made lace. "Very simply, what it does is to make the shot look not lit — it's like breaking up a steady stream of light into different particles, so that light and textures cross people's faces. I propped up or draped the fabric on Century stands and flags. That cuts the light from the walls so that the eye [of the viewer] goes to the character rather than a detail in the wall. I always use silks when I want to make people — especially women — look softer. It's a more practical material because tracing paper rattles and crackles."

Shooting with Arriflex 435 ES and 535 cameras, Adefarasin employed two Cooke zoom lenses (the 5:1 and 10:1), but found his Zeiss T1.3 Super-speed primes to be most useful because of the way they accentuated the soft quality of his lighting. A penchant for realism also extended to the types of filters Adefarasin used — 1/8 and 1/4 Black ProMists and an 1/8, 1/4 and 1/2 Harrison Double Fogs. However, the cinematographer still feels that the most effective filter is a thinned-out layer of smoke, which he used to differentiate objects in larger spaces (stages or locations), particularly Durham Cathedral. "It gives an effect better than any filter," Adefarasin says. "Objects close to camera are quite defined, and blacks hues become really black. But when an object is 10 feet away, the blacks are very light and have a slight haze to them; at 30 feet away, the blacks have a mid-gray tone. The smoke gives your eye a good indication of depth in the room — you can judge how far away objects are by how gray they appear."

Scenes requiring a harsher tone — such as Elizabeth's interrogation in the Tower of London after she's been arrested for treason — were shot without filtration. The inquisition cell itself was quite small, even after production

designer John Myhre (*Lawn Dogs*, *Anna Karenina*) elongated it as much possible; he designed it around a circular track which left barely 18 inches to spare, not even enough room for the director's presence. Offers Adefarasin, "Those scenes were shot to be very annoying. We used circular tracks in both directions — sometimes on one person, or panning from one person to another. I deliberately overexposed the windows so that when the camera tracked past one — the panes were all symbolically cross-shaped — the light just bled into the lens and burned out."

For a bio-pic on one of the most revered monarchs in British history, traditionalists might find the pairing of an Indian director with a black British cameraman to be somewhat unconventional. Quite to the contrary, Kapur felt that fusing an East-meets-West aesthetic was an appropriate creative choice in depicting the life of Queen Elizabeth the First. Says Kapur, "I was attracted to this character because she was so far away from me in terms of time and culture. I knew that I would have to make very bold creative decisions to bring her closer to me. The bridge I had to build between us was long, but also very adventurous. It was about adapting to theories of chaos rather than being controlled by preconceived notions."

Shots Heard Around the World by Eric Rudolph

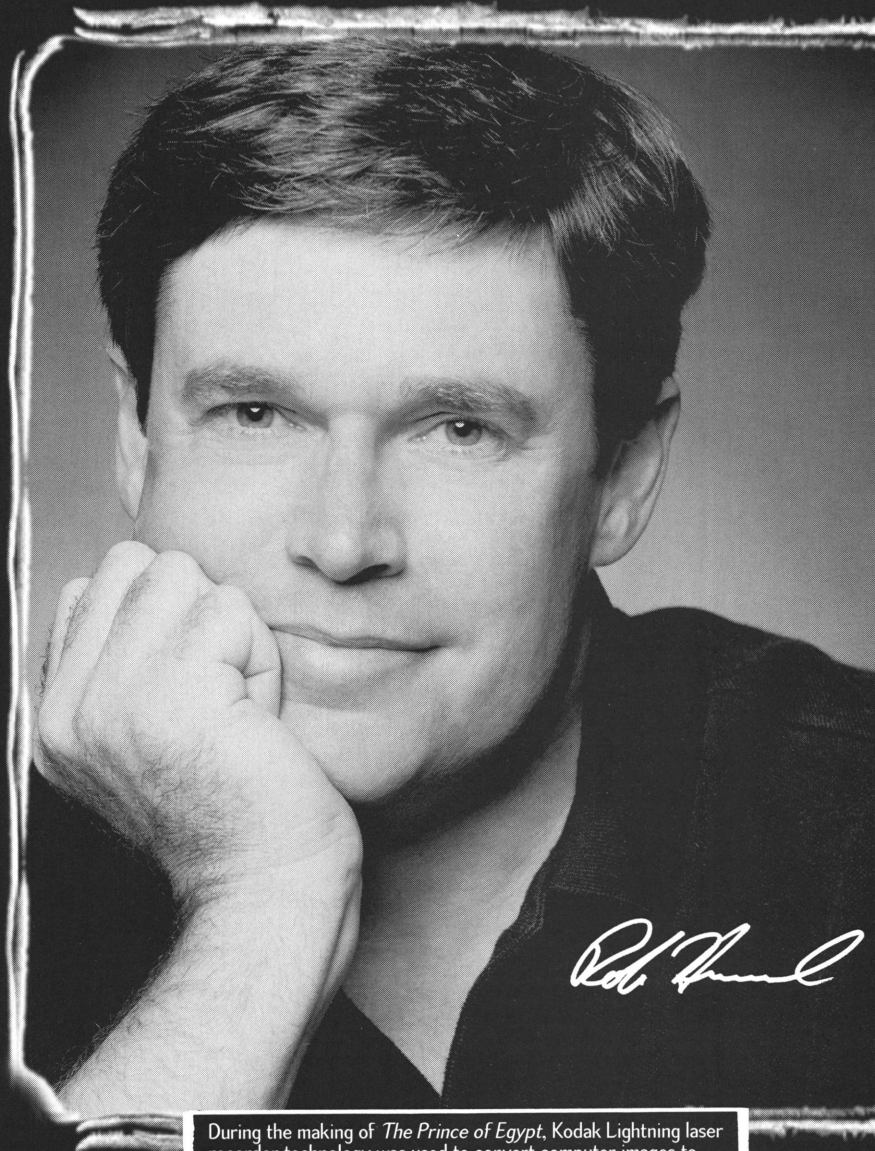
Shortly after high noon on November 22, 1963, a sixtysomething Dallas dress manufacturer stepped into the history books when he shot a startling 8mm motion picture depicting the assassination of President John F. Kennedy. Abraham Zapruder's short strip of narrow-gauge film went on to become one of the most scrutinized visual documents ever, and has stirred up a seemingly unending stream of debate for 35 years. The Zapruder film has been so controversial that a group of assassination researchers — known casually as the Alterationists —

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Rob Hummel

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Rob Hummel grew up as a film buff, who followed his heart to Hollywood years ago. He worked at Technicolor Labs as a liaison with cinematographers, and later with Douglas Trumbull on the *Bladerunner* visual effects team. Hummel was a postproduction coordinator on *TRON*, and he subsequently played various roles at Walt Disney Studios, before becoming one of the first employees of DreamWorks, SKG in 1995.



Rob Hummel

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greatly doctored by government agents.

Poor-quality copies of the Zapruder film have been available through various sources since the late Sixties, but up until recently this astonishing document has never been commercially available to the general public. That situation changed this summer when Chicago-based MPI Home Video released *Image of an Assassination: A New Look at the Zapruder Film* on videocassette and DVD. This new digital version of the film was struck directly from Zapruder's camera original and contains the controversial visual information recorded between the film's sprocket holes. The lack of availability of this additional information in high-quality form has spawned a host of theories about the film's veracity.

In actuality, the Zapruder film has quite prosaic origins. In November of 1962, Abraham Zapruder purchased a Bell & Howell model 414 PD Zoomatic Director's Series 8mm movie camera, fitted with a Varimat 9-27mm f1.8 zoom lens, at Peacock Jewelry on Elm Street in Dallas. Zapruder's dress company — Jennifer Juniors — was also located on Elm Street, directly across the road from the Texas School Book Depository and Dealey Plaza.

On the fateful day of JFK's slaying, Zapruder did not bring his movie camera to the office. He went home and retrieved it only after an assistant convinced the amateur cameraman that he would want to show his grandchildren a film of the Presidential procession.

As Kennedy's motorcade approached Dealey Plaza, Zapruder found an elevated filming position atop a concrete abutment close to the famous grassy knoll (near the spot where most denouncers of the Warren Commission Report claim that several of the shots, including the fatal one, originated).

According to Martin Shackelford's paper *A History of the Zapruder Film*, Zapruder was standing 185' from the southwest corner of the Depository building (from where the Warren Commission said lone assassin Oswald fired upon the President) and 65' from the center of Elm Street, the spot where

Kennedy was killed.

Marilyn Sitzman, the same assistant who urged her boss to go home for his camera, stood behind Zapruder on the concrete pedestal, and held onto him to allay his fears of losing balance if he happened to become dizzy. With the lens of his high-end home movie camera set at maximum telephoto range and loaded with a partially used roll of Kodachrome II film, Zapruder set about capturing one of the most wrenching incidents in American history.

The *Image of an Assassination* project began when Zapruder's heirs decided that an archival copy of the film should be made. (The family regained control of the film from *Life* magazine in April of 1975, one month after a poor-quality copy was first aired on national television.) A decision was made that the copy should take advantage of advances in digital imaging, which would include eliminating the need for the 35-year-old film to be subjected to potentially damaging runs through a mechanical film gate.

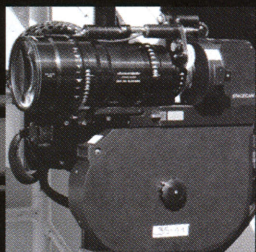
After it had been determined that the best approach would be to shoot large-format still transparencies of each frame to be scanned and re-animated digitally, the Zapruders' attorney contacted Joe Barabe of McKrone Associates, an Illinois firm which specializes in photo microscopy.

Barabe packed up his gear and shipped it to the National Archive II in College Park, Maryland, where the camera original of the Zapruder film is kept under temperature and humidity-controlled archival conditions as a courtesy to the Zapruders.

Barabe devised a simple polyester film-holding system that doubled as a frame-numbering mechanism, as well as an easel made of microscope slides which held the film as flat as possible under the camera. Barabe hastens to note that no glass existed between the 8mm original and the copying camera's lens; the special easel was designed with a half-inch hole in the center.

Using a 4 x 5 format copy camera fitted with a Zeiss Luminar 40mm f4.5

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lens which magnified each frame 12 times, Barabe made six-second time exposures of each of the approximately 480 frames of the film itself, which was illuminated by a light box fitted with a transparency copying bulb.

The stills of each frame were made onto Kodak 6121 color transparency sheet film taken from the same emulsion batch. The 8mm film was photographed from edge to edge in order to include the area between the sprocket holes.

The five-day photographic process did present several problems. "Shooting stills at high magnification makes the choice of the f-stop important for matters of depth of field and resolution," says Barabe. "We wanted the greatest depth of field to compensate for the fact that film curls. However, to stop down too much at this high magnification would have lowered the resolution because of defraction effects. We had to find the ideal balance, which we determined was to stop down from f4.5 to f6.3. We tested the resolution and depth of field at this setting and found it to be quite good."

A .60 neutral-density filter was included in each of Barabe's stills. "The .60 ND, with the light from our source coming through, photographed as a middle gray. Since each transparency was later checked with a densitometer and by eye, this gave us a solid density reference point," he explains.

After the processed still film was reviewed and reshoots were done, the transparencies were sent to a company which scanned each 4 x 5 transparency at 1,500 DPI resolution. The frames were then sequenced and registered on a computer, using the images of the sprocket holes and frame edges as guides. Scratches and dirt were removed and dark areas opened up via Photoshop; some camera shake was also eliminated digitally.

The still frames were then animated back to the camera's running speed of 18 frames per second, creating a new digital motion picture version of the 480 still frames. (The home video also includes several slow-motion and

tightly cropped versions of the Zapruder film, as well as versions showing the area between the sprocket holes.)

One of the Zapruder film's most important features 35 years later is the fact that it was shot on a standard home movie stock of the time — Kodachrome II. This emulsion has long been proven to possess excellent sharpness, color saturation and image stability. What is immediately striking about the revamped Zapruder film is the appearance of its sharp, bright, saturated colors.

The home video version of the film is reportedly the first copy fashioned from the camera original since Kodak struck three copies of it in Dallas on the day of the assassination. Now, the general public can view a pivotal moment in history with a clarity close to that seen by those handful of people present at the initial Kodak screening.

The video release of the Zapruder film facilitates close scrutiny of its images, allowing one to easily absorb the event's truly heartbreaking aspects.

As the Presidential limousine emerges from behind a street sign, Kennedy has both hands at his throat after being shot for the first time. Noticing that something is amiss, Jacqueline Kennedy turns toward her husband with concern. At the same time, Texas Governor John Connally turns in his seat and speaks to the President. An instant later, Connally himself is shot and slumps over.

The vehicle proceeds for a moment, then clearly slows and appears to nearly stop. At the exact instant that the car comes to a halt, the left side of Kennedy's head is blown open in an explosion of blood and gray matter. At the moment of the fatal shot, Mrs. Kennedy had been leaning her head quite close to that of her husband. At first, she gently places an elegantly white-gloved hand around the back of her husband's neck just below his obliterated head. Then, after absorbing what has happened, the First Lady responds in horror and climbs onto the back of the car.

Another astonishing aspect about the film is the fact that Zapruder (who nearly loses the President from the

bottom of his frame just prior to the fatal shot) had positioned himself in what appears to be a direct line with the President at the moment of the deadly shot. This instant is also the point at which Kennedy and Zapruder are closest in terms of physical space.

The MPI video also clearly displays the visual information between the sprocket holes, where ghostlike images of the scene are occasionally present. Alterationist researchers state that these images are proof that the entire Zapruder film is a cleverly fabricated fraud. Supposedly, this discrepancy results from a hastily planned overnight alternation of the film by the government, which used ultra-sophisticated filmmaking techniques completely unknown to the motion picture business in late 1963 and for many years to follow. But according to MPI staff member and *Image of an Assassination* writer/producer H.D. Motyl, "There is nothing in the sprocket area that proves or disproves a [theory] that the film was altered."

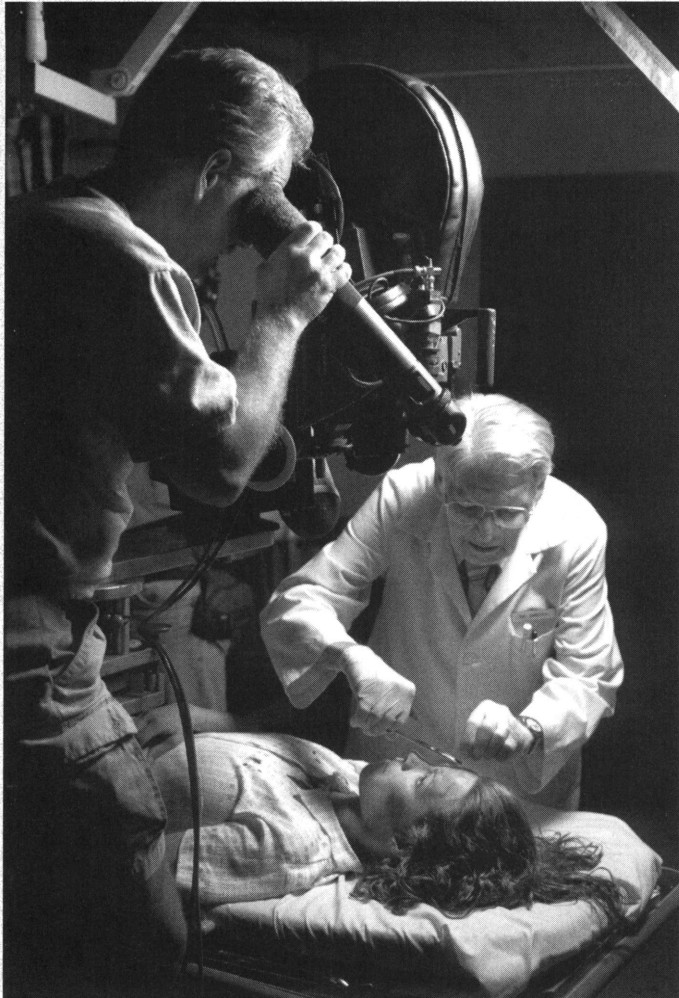
Researcher Anthony Marsh maintains that the ghost images are the result of a design anomaly in the aperture plate of Zapruder's camera. A groove next to the actual aperture area permitted the pull-down claw to access the sprocket holes instead of the more conventional notch at the top of the aperture plate: this design, Marsh insists, is responsible for those sprocket area images.

Others theorize that crucial evidence in the scene's imagery was actually recorded between the sprocket holes. However, the video release seems to refute those arguments as well, since no nefarious activity is apparent in this area.

Anyone wishing to see the actual Bell & Howell movie camera with which Abraham Zapruder made his famous film need only visit the Sixth Floor Museum located in the former Texas School Book Depository building. The humble camera, on loan from the National Archive, sits under a museum case in subdued archival lighting, along with 12 other movie and still cameras also in use in Dealey Plaza on November 22, 1963. ■

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Michael Barrow, Director of Photography (pictured above with Aaton 35-III):

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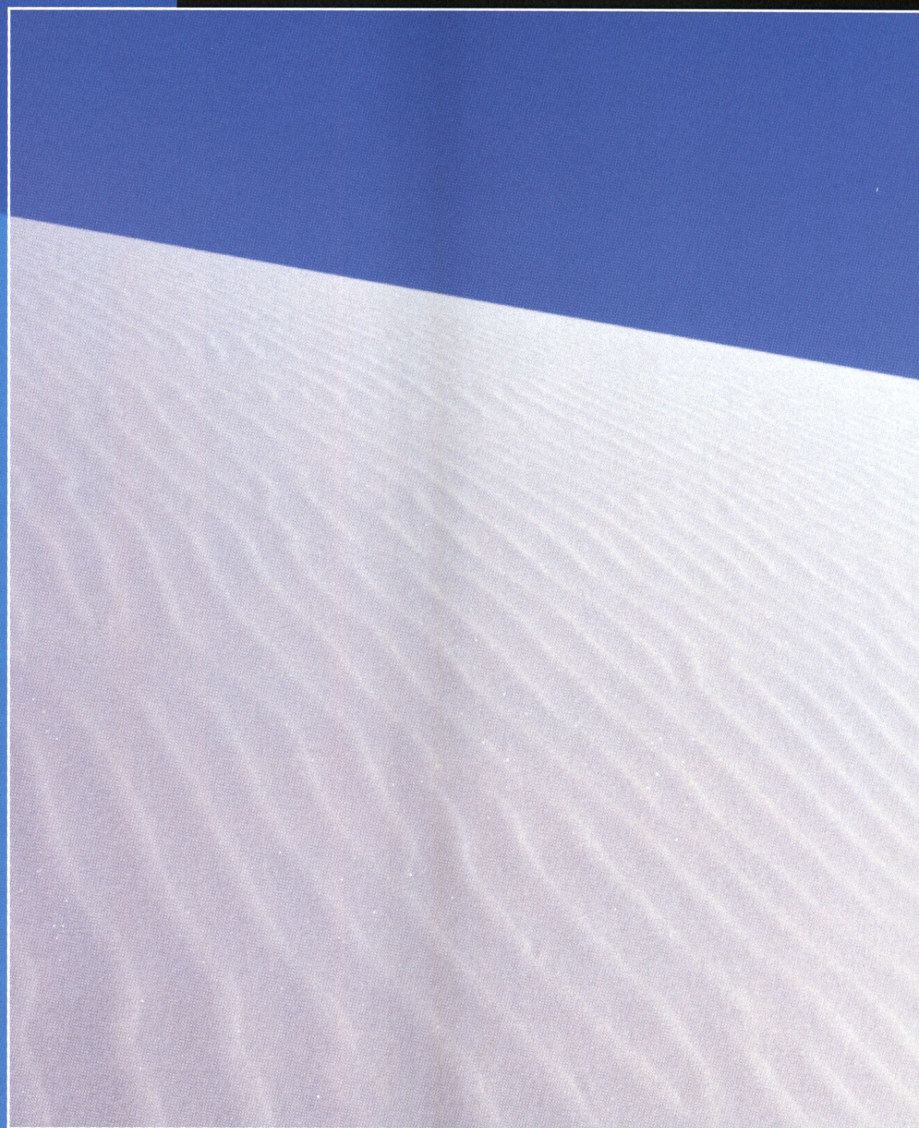
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A Poignant Pas de Deux

Director of photography Vilmos Zsigmond, ASC helps director Willard Carroll create an ode to love's many splendors in *Playing by Heart*.

by Bob Fisher

Photography by Peter Sorel

Love is an emotion that has fueled the artistic imagination for centuries. From the sonnets of Shakespeare to the sculptures of Rodin, this transcendent state has retained its ability to fascinate and seduce an audience.

Director Willard Carroll was moved to capture love's many facets after a memorable conversation with

a musician friend, who observed that language alone rarely captures the most ephemeral aspects of this powerful human impulse. The duo's discussion kindled an idea for a script that weaves six distinctly different relationships into a contemporary love story which unfolds during eight days and nights in Los Angeles. The city's environs play a

ubiquitous role throughout the tale. As Carroll explains, "Suddenly it came to me that I could connect a series of love stories that crossed different generations in a variety of situations: romantic love, maternal

Photos courtesy of Miramax Films.

love and even illicit love.”

As a multi-hyphenate filmmaker, Carroll has compiled a growing body of independent feature and telefilm work since graduating from the USC Cinema and Television School. *Playing by Heart* is his third outing as a writer/director (following *Tom's Midnight Garden* and *The Runestone*).

“So many books, poems and songs have been written about love—in an attempt to find special ways to put into words feelings that are somewhat intangible,” Carroll says. “We’ve made a movie in which a variety of characters try to talk about love, a subject that affects everyone but is so difficult to talk about.”

In his effort to capture this elusive feeling of emotional effervescence onscreen, Carroll assembled an extraordinary cast, which includes Gillian Anderson, Ellen Burstyn, Sean Connery, Anthony Edwards, Angelina Jolie, Nastassja Kinski, Jay Mohr, Amanda Peet, Ryan Phillippe,

Dennis Quaid, Gena Rowlands, Jon Stewart and Madeleine Stowe.

Carroll cast Vilmos Zsigmond, ASC in the role of cinematographer. Zsigmond has earned an Academy Award for his work on Steven Spielberg’s *Close Encounters of the Third Kind*, nominations for *The River* and *The Deer Hunter*, and numerous other honors. Other key players behind the scenes included editor Pietro Scalia (who earned an Oscar for *JFK* and a nomination for *Good Will Hunting*), production designer Missy Stewart (*Good Will Hunting*) and costumer April Ferry (who received an Oscar nomination for *Maverick*, which was also shot by Zsigmond).

How did Carroll bring all of this talent together on a film with a lean \$14 million budget? Zsigmond explains, “This movie reminds me of my early days in Hollywood, when I did little pictures like *McCabe and Mrs. Miller*, *Cinderella Liberty* and *Deliverance*. It tells a real story and

recaptures the joy of filmmaking.”

The film was developed by Hyperion Studio, which Carroll founded in 1984 along with its current president, Tom Wilhite, the former head of motion picture and television production for Walt Disney Studios. The duo share producing credits on *Playing by Heart* with casting director Meg Liberman and executive producer Paul Feldsher (*Wings of the Dove*). Miramax Films will distribute the film in the U. S., while Intermedia Films will distribute it internationally.

The following are excerpts from a recent conversation with Carroll and Zsigmond:

American Cinematographer: Willard, why did you choose Vilmos to photograph this film?

Carroll: Vilmos has shot some of my favorite films, and I felt he would understand why I wanted to make a character-driven movie in the

A tapestry of six stories about love and relationships, *Dancing About Architecture* demanded that each segment be approached as its own mini-movie. Opposite: Joan (Angelina Jolie) and Keenen (Ryan Phillippe) engage in cocktail chat at an L.A. nightspot. Below: Gracie (Madeleine Stowe) strikes a seductive pose.



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Zsigmond sought to infuse the film with a sense of "poetic realism." Above: Hugh (Dennis Quaid, in background) confesses his crimes to Melanie (Nastassja Kinski) in a bar draped with noir overtones. Right: Mildred (Ellen Burstyn) contemplates her son's illness.

'Scope [widescreen] format, which is an actor-friendly medium. At our first meeting, we discussed playing dialogue scenes in two-shots. I didn't want talking heads. I also wanted an elegant, romantic view of Los Angeles. It's a city we don't normally associate with romance.

Most of your exteriors were filmed at night.

Carroll: That was by design. Los Angeles comes alive at night, and we wanted to have these romances taking place in the city at night in more atmospheric situations and settings, including nightclubs and restaurants.

What was the process for making decisions about the visual approach to the material?

Zsigmond: We discussed each character and couple, including the look and feel of their scenes and environments. It wasn't always explicit. Sometimes we just discussed our feelings about individuals and couples. When I worked with [director] Mark Rydell on *Cinderella Liberty*, the lighting style was a kind of 'poetic realism.' That's also what Willard wanted. It's prettier than

reality, and serves the story better.

Do you want the audience to see this film as a fantasy or reality?

Carroll: Today's audiences are pretty sophisticated, though they may not know why they are responding to something. It's our job to create alternate worlds that create emotional responses. I don't think they mind being manipulated that way.

Zsigmond: If you are doing a Frankenstein movie or *Star Wars*, it doesn't have to be realistic — in fact,

it should be more impressionistic or surrealistic. If you are telling a story about real people, the classical painters gave us a good model. They never lit anyone badly, and they never used soft light. They always had nice modeling light on the faces and darker backgrounds so the people would stand out.

How did your ideas about the look of the film change during production?

Carroll: There were fewer and smaller stylistic differences between the various segments than we originally discussed. When we started shooting, we decided it was better to minimize those differences and give the movie a cohesive look.

Did you previsualize any specific actors in roles?

Carroll: I wrote parts with Gena Rowlands and Ellen Burstyn in mind, and fortunately they were interested. Gena and Ellen have auras. They seem to be lit from within, which is special when Vilmos Zsigmond is the cinematographer.

Did you have time to shoot makeup and costume tests with everyone?

Zsigmond: We shot makeup tests with Gena, Ryan Philippe [who plays Keenen], Gillian Anderson [Meredith], Dennis Quaid [Hugh], and maybe some others. Keenan is supposed to be a young guy, but I was





While shooting a poolside sequence, the crew maneuvers through an artificial downpour created with rainbars.

a little concerned that he was going to look too young. We decided to ask Ryan not to shave, and that gave him just enough of an edgy look.

Did the different characters have visual signatures in terms of the way you lit them?

Zsigmond: Hugh is kind of suspenseful in the beginning. You don't know who he is or where he's from, but he shows up in a bar and claims he's killed his wife and child. We shot that scene film-noir style, like an old black-and-white mystery. Other characters, like Meredith, are lit more romantically with lots of backlight. However, these were subtle differences, because we didn't want it to look like six different movies.

How long was the production schedule?

Zsigmond: We shot for 41 days. Scheduling was important. We were able to get star-quality actors because we only needed some of them for eight or 10 days. I think that Gillian Anderson worked the longest, 18 days. Sean Connery and Gena Rowlands worked for eight consecu-

tive days, and all of their scenes were in one location.

Was it a handicap to work with some of the actors for only six, eight or 10 days, in terms of trying to develop a rapport with them and learning how to light them?

Carroll: It was like starting another movie every week. We shot for five days a week and rehearsed on the weekends with the couple that was starting the next week. Vilmos and some of his crew were there, and they had an opportunity to do some blocking. That gave us an opportunity to break the ice with the actors.

What was the shortest time you had one of the main actors?

Carroll: I think we had Jay Mohr for four days. He plays Mildred's son, who is dying of AIDS in a very sterile hospital setting. That mother-son love story involves some very difficult and emotional scenes that are important to the story.

Zsigmond: My real lighting job began during the rehearsals, when I saw what Willard wanted to do with the actors. Another factor

was that because we had so few days with some actors, it was important for us to be ready to go at 9 a.m. every day.

Carroll: At the end of every day, we'd stage a rehearsal for the first scene the next day. It usually didn't take more than 10 or 15 minutes, but it helped us get started on time in the morning. That helped us a lot with our budget and schedule.

Willard, once you were shooting, did you have time to keep communications flowing with Vilmos, or were you totally focused on the actors by then?

Carroll: I'm not a 'monitor director,' so Vilmos and I were standing next to each other all the time. We kept talking. In fact, another advantage of working with Vilmos was that he also had really good rapport with the actors. That's really important on a character-driven film like this.

Did you shoot in anamorphic or Super 35?

Zsigmond: Willard originally wanted Super 35, but the more I thought about it, the more I felt it

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should be anamorphic because the image quality is so much better. It's a different look. It turned out that Miramax didn't want Super 35 anyway.

How did you use the anamorphic format to amplify story points?

Carroll: My favorite pure anamorphic shots are in the hospital. There's one shot in which Jay Mohr is on the far left side of the frame and Ellen Burstyn is on the right edge, with a lamp between them. Ellen moves and the lamp lights Jay in a sort of aura, with her more subdued in the background. We held that shot for a considerable amount of time. It's a really beautiful image that says what the relationship is about. You couldn't do it in 1.85:1.

What type of anamorphic lenses were you using?

Zsigmond: I prefer the older Panavision C-series lenses for a story like this, because faces look better and much softer — but not in the sense of softer focus. The C-series lenses see people the way your eye sees them.

Did you use any diffusion?

Zsigmond: I typically use some light diffusion because the lenses and camera stocks are so sharp today that you have to make the images look gentler and more lifelike. I like using a sharp film and lens for landscapes and wide-angle shots, but on close-in shots on people, I use very little diffusion — not enough for anyone to really notice it.

How close is a close-up in anamorphic format?

Zsigmond: It starts with a 100mm lens, but it also depends on the scene. Some cinematographers zoom in and maybe fill the screen with a 180mm focal length. Instead, we tried to move the camera a little closer to get the right perspective. I used eyelight from the camera angle, but the feelings have to begin with the actors. You can only help them to make it visible for the audience.

Vilmos, did the decision to use the older and slower anamorphic lenses affect your choice of film stocks in terms of speed or other

considerations?

Zsigmond: No. I had already decided to use Kodak's 500-speed Vision stock [5279], because there were so many interior and night exterior scenes in the script.

You chose the older anamorphic lenses and the new 500-speed film?

Zsigmond: I knew that combination was right. There's less grain in the 79 [than in other 500-speed films] and more shadow details, and it is also more forgiving in the highlight areas. That was important, because I didn't want to use a lot of fill light. Normally, you would balance the level of interior light with the exterior light outside the window, but I didn't want to take the time to do that, and the 79 was more forgiving in that situation.

On daylight exteriors, and occasionally interiors, I used Kodak's 250-speed daylight film [5246] so that I wouldn't have to use an 85 filter [for color correction]. I didn't want that extra piece of glass in front of the lens.

Dolly tracks and careful lighting facilitate a moody exterior walk-and-talk sequence.



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Cameraman
Vilmos Zsigmond (left) and
writer/director
Willard Carroll.



How much of this film was made on sets versus locations?

Zsigmond: We shot about 90 percent at interior and exterior locations, and built two apartment sets and one other small set. Sean and Gena play Paul and Hannah, an older couple that is planning to be remarried on their 40th anniversary. We filmed those scenes and the closing shot at a beautiful house in Tarzana that once belonged to Edgar Rice Burroughs. We couldn't have designed better sets for anamorphic lenses.

What considerations determined whether you built a set or found a location?

Carroll: You want a character's apartment or workplace to say something about them and their lifestyle. Angelina Jolie plays Joan, one of the youngest characters. She lives in a fairly modest Venice beach apartment. We didn't find a place with the right feeling and space for shooting in the anamorphic format, so we built a set.

How did the collaborative process work in terms of the production design? Did you talk first, or did Missy Stewart design sets prior to the discussions?

Carroll: We talked and then she built models and got color swatches. Vilmos and I also shot some tests. When we shot makeup

"This movie reminds me of my early days in Hollywood, when I did little pictures like *McCabe and Mrs. Miller*, *Cinderella Liberty* and *Deliverance*."

— Vilmos Zsigmond, ASC

tests with Gena, we painted the walls behind her a few different colors to see how they worked.

Zsigmond: There is a set for a hotel room where two characters who are having an affair [Gracie and Roger, played by Madeleine Stowe and Anthony Edwards] get together. Missy built a model, and she had some good ideas about wanting to see the city behind the people. We planned to have a TransLight behind the window. Most of the action takes place in the bed, but I could see that the window was in the wrong place.

I showed Willard and Missy that we would be shooting from the wrong position if she didn't move the window or if Willard didn't restage the actors. We also put a mirror on the other side of the set, and that allowed us to see reflected images of the city. There was also a huge, circular mirror in the bathroom that we could see from certain angles.

Carroll: You can see the city in virtually every scene, and I felt that was important because I've seen too many movies where sets are practically screaming that they are fake. We choreographed a lot of action in two-shots. The scenes in question were sexy but also funny. We used the mirrors to reconfigure compositions and [the characters'] positions in the room. A lot of these decisions were made spontaneously while we were shooting.

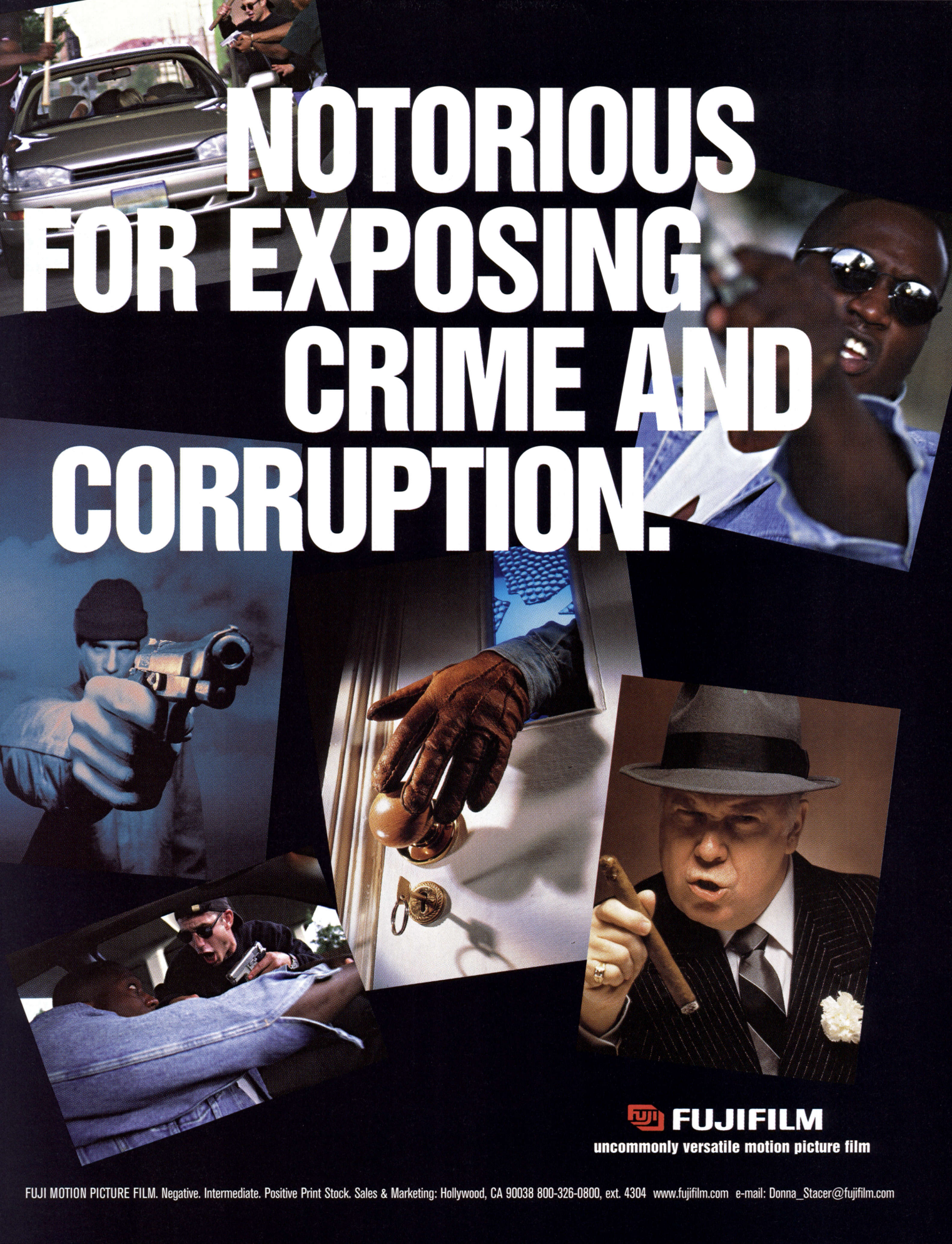
Zsigmond: It's important to have the freedom to alter compositions and camera moves and take advantage of things that happen on the set. In order to do that, you need to plan for motivated light sources. Lamps, windows, open doors and mirrors are great because you can put them anywhere. This is especially important when you're working in the anamorphic format, because you can see more of the background behind people.

I got a sense of where Willard wanted the camera just by listening to him talk. From the way Willard spoke about other films, I knew he would love over-the-shoulder shots with just a piece of a character framed the foreground. I'd use a longer lens with just a piece of a person in the foreground. It's almost like a two-shot.

What's the philosophical purpose of a shot like that?

Zsigmond: It forces the actors to look by the camera. You can look into their faces and eyes and practically see their thoughts.

Carroll: There are only a handful of genuine close-ups in the picture, and they were always intended to punctuate a story point. One of the film's core scenes is a kitchen encounter between Sean and Gena. It's a long scene, about four pages, and we did it primarily with two-shots over the shoulder. At several points during scene, Sean's character says things that are very disturbing to Gena's character. You



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Zsigmond fine-tunes a flag while the camera captures a shot of Gracie and Roger (Anthony Edwards) during a hotel-room tryst. Production designer Missy Stewart built a model of the set in preproduction, and Zsigmond helped suggest a plan to use windows and mirrors to allow the Los Angeles cityscape to enhance the scene.

hear his lines and see her reactions in close-ups.

Vilmos, how do you encourage the audience to listen to dialogue?

Zsigmond: I want the audience to see the characters' faces, even if I'm shooting in a film noir style, when there is important dialogue. It can be part of the face or just the eyes.

Carroll: Vilmos is exactly right. We had many, many flawless takes that lasted for three to four minutes with the actors just bouncing off of each other. We did a scene with Ellen and Jay that lasted for about a minute and a half as a two-

shot. We were going to move in for an over-the-shoulder shot that would visually punctuate a reaction, creeping in so slowly that it would be almost imperceptible. But we decided there was no reason to do it that way, because the actors related so genuinely in the two-shot that your eye went exactly where we wanted it to go.

Is the camera subjective or objective in the film?

Zsigmond: It mainly shows the audience the director's point of view, though sometimes it becomes an actor's subjective point of view.

Carroll: We talked a lot about

camera movement, such as when to start a dolly move — on what word of dialogue, and so on. That made a big difference in a couple of scenes. We sometimes shot a scene in a variety of ways, maybe starting a move a millisecond later on a second take. Vilmos is very sensitive to the art of choreographing moves.

Were you shooting with one camera or multiple cameras?

Zsigmond: We used a lot of two-camera setups. Usually, we'd do a master and an over-the-shoulder shot. You save time with the second camera, and I think you get better and matching performances.

What kinds of lighting limitations were imposed by the relatively modest \$14 million budget?

Zsigmond: I had the same crew I've worked with on bigger movies, and strangely enough I had more time to light than I have on many higher-budget movies. Willard was very organized, and everything happened on time.

Did the film lab treat you the same on this movie as they would have on an \$80 or \$100 million project?

Zsigmond: The lab was Deluxe, and they couldn't have treated us better if we were shooting a \$100 million movie.

Did you look at film or video dailies?

Carroll: We looked at film every day, because I believe you need to see shots on a big screen to judge whether or not they work. There are a lot of long takes in the picture, so we probably spent 60 to 90 minutes a day looking at dailies. It made all the difference in the world.

Despite the tight budget, there are a number of elaborate scenes in the picture, including a big dance number.

Zsigmond: That's one of several Technocrane shots. We staged a dance scene with 800 extras in L.A.'s Mayan Theater, which is now used as a dance club. We started in the



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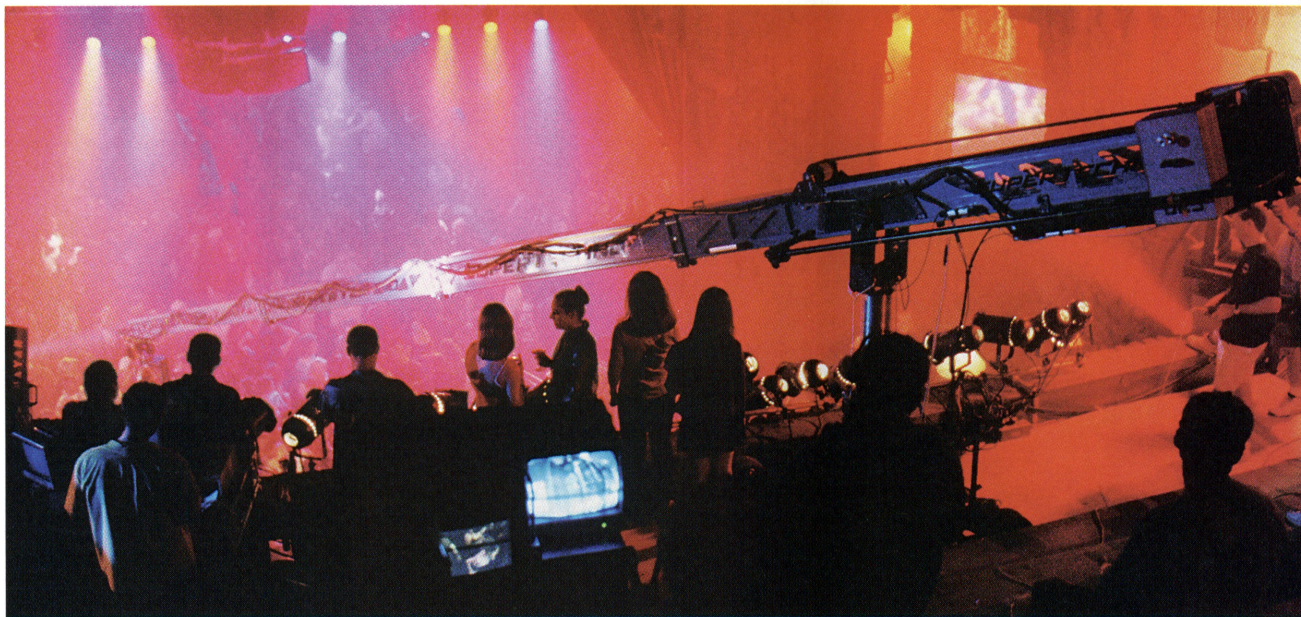
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Cinematographer

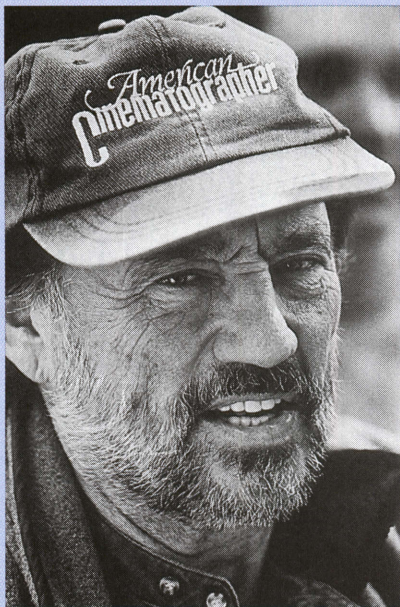
COMING MARCH 1999

A Poignant Pas de Deux

An elaborate club sequence was staged with 800 extras at L.A.'s Mayan Theater. Positioned on a balcony about above the floor, a Technocrane was used to home in on Keenen dancing with Joan. The location's available illumination proved too dim for shooting, but according to Zsigmond, "On a big set like that with a lot of people on the dance floor, you don't have to be a genius to light. If you light from all the sides it looks flat, so we decided which side the key light should come from, and used cross- and backlight to create separation."



Zsigmond Earns ASC's Highest Honor



The American Society of Cinematographers has announced that Vilmos Zsigmond, ASC will receive the organization's 1998 Lifetime Achievement Award, recognizing a body of work which has had a deep and enduring influence on the art of contemporary filmmaking. Zsigmond has compiled some 60 narrative film credits. He is the only person to earn both an Oscar and an Emmy for cinematography — the Oscar in recognition of his outstanding camerawork on *Close Encounters of the Third Kind*, and the Emmy for the HBO miniseries *Stalin*.

"It's indescribably thrilling to receive an Oscar or an Emmy," Zsigmond says. "I still remember that unbelievable feeling when I heard my name called at the Oscars in 1977, and I got up on the stage with millions of people watching on TV. The ASC Award is an even bigger honor, though, because it recognizes many of my films, and it comes from my peers."

Zsigmond was also nominated for Oscars for photographing *The River* and *The Deer Hunter*. His other credits include *McCabe and Mrs. Miller*, *Deliverance*, *The Sugarland Express*, *The Long Goodbye*, *The Rose*, *The Witches of Eastwick*, *Maverick* and *The Ghost and the Darkness*.

The Lifetime Award announcement was made by ASC president Woody Omens, who described Zsigmond as an "innovative cinematographer who has consistently worked on the cutting edge to advance the art of filmmaking." He called Zsigmond a source of inspiration for filmmakers in every part of the world, both for his stellar work and because he overcame incalculable odds, including a daring escape from Communist-controlled Hungary with future ASC peer Laszlo Kovacs, to achieve artistic success.

Zsigmond will receive the Lifetime Achievement Award on February 21 at the 13th Annual ASC Outstanding Achievement Awards ceremony, to be held at the Century Plaza Hotel in Los Angeles. A comprehensive overview of Zsigmond's career, as well as more details about his honor, will appear in the February 1999 issue of *AC*.

— Bob Fisher

balcony high above the floor. We were focused on a chandelier and came down to Keenen dancing with Joan [Angelina Jolie].

How did you approach lighting that large area?

Zsigmond: We were hoping that the available light was going to be enough, but when we scouted the location with every light turned on, it was still much too dark. On a big set like that with a lot of people on the dance floor, you don't have to be a genius to light. If you light from all the sides it looks flat, so we decided which side the keylight should come from, and used cross- and backlight to create separation. We also had some lighting effects that created atmosphere.

How else did you use the Technocrane?

Zsigmond: There was another interesting shot with the same actors, Jolie and Phillippe, in a three-level shopping center containing a cinema complex. We filmed them riding down an escalator, and that's where we used the crane. The area was lit by mercury-vapor lamps that we had to augment because there wasn't enough light for the stop we wanted. We used HMI units with green gels to match the mercury-vapor lamps. We can pull some of the green out in the lab. We built a solid deck that held the base of the crane. The camera follows the actors very smoothly as they ride down the escalator, pans 90 degrees as they get off, travels ahead of them for about 60 feet, pans 180 degrees and follows them the last 100' as they walk to the elevator.

Couldn't you have done that shot more simply with a Steadicam?

Zsigmond: It would have been simpler to shoot, but it wouldn't have had the same feel. This is a romantic moment and the camera is kind of eavesdropping on the characters' conversation. We didn't want the camera to be intrusive.

In the last scene, a wedding,

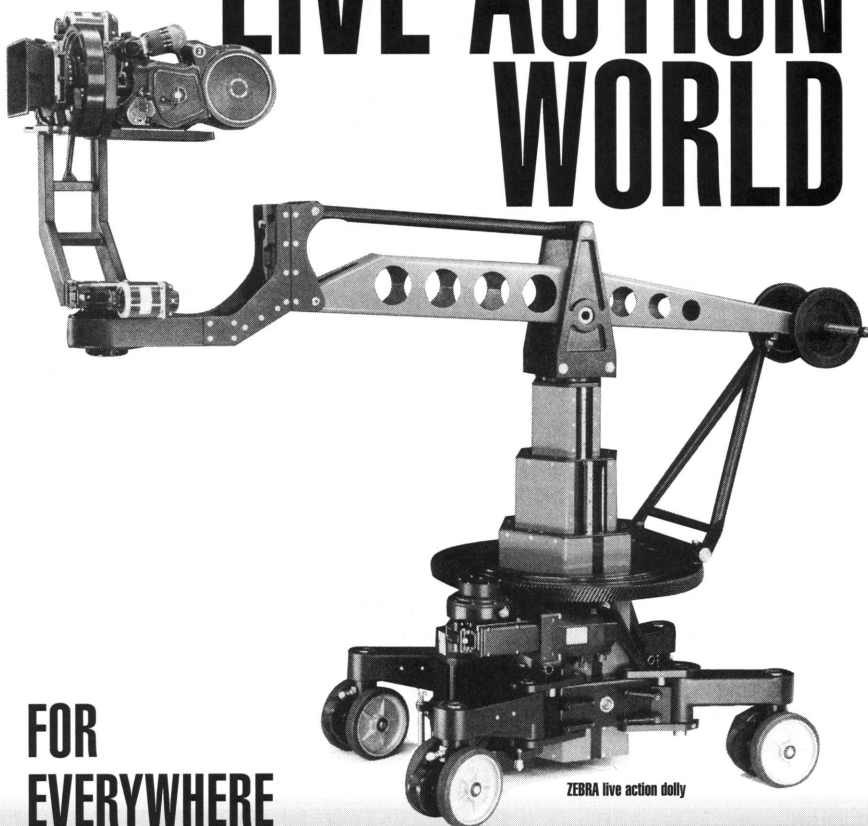
you have a stunning shot looking down on everyone from the perspective of an Akela crane. How was that shot planned?

Carroll: Vilmos and I scoped that situation out to get a feeling for the shot. We didn't get up as high as the Akela crane ultimately did [80'], but it was pretty exciting going up through those trees and power lines.

Zsigmond: There was an existing a tennis court and we used one

side of it for the base of the crane. The closing shot 30mm as made with a 20mm lens on the camera. It was around 4 p.m. and the sun was making long shadows from the trees on the ground. It is a touching scene with great music. It was a perfect way to end this particular story and send the audience home thinking about the characters and the meaning of love. ■

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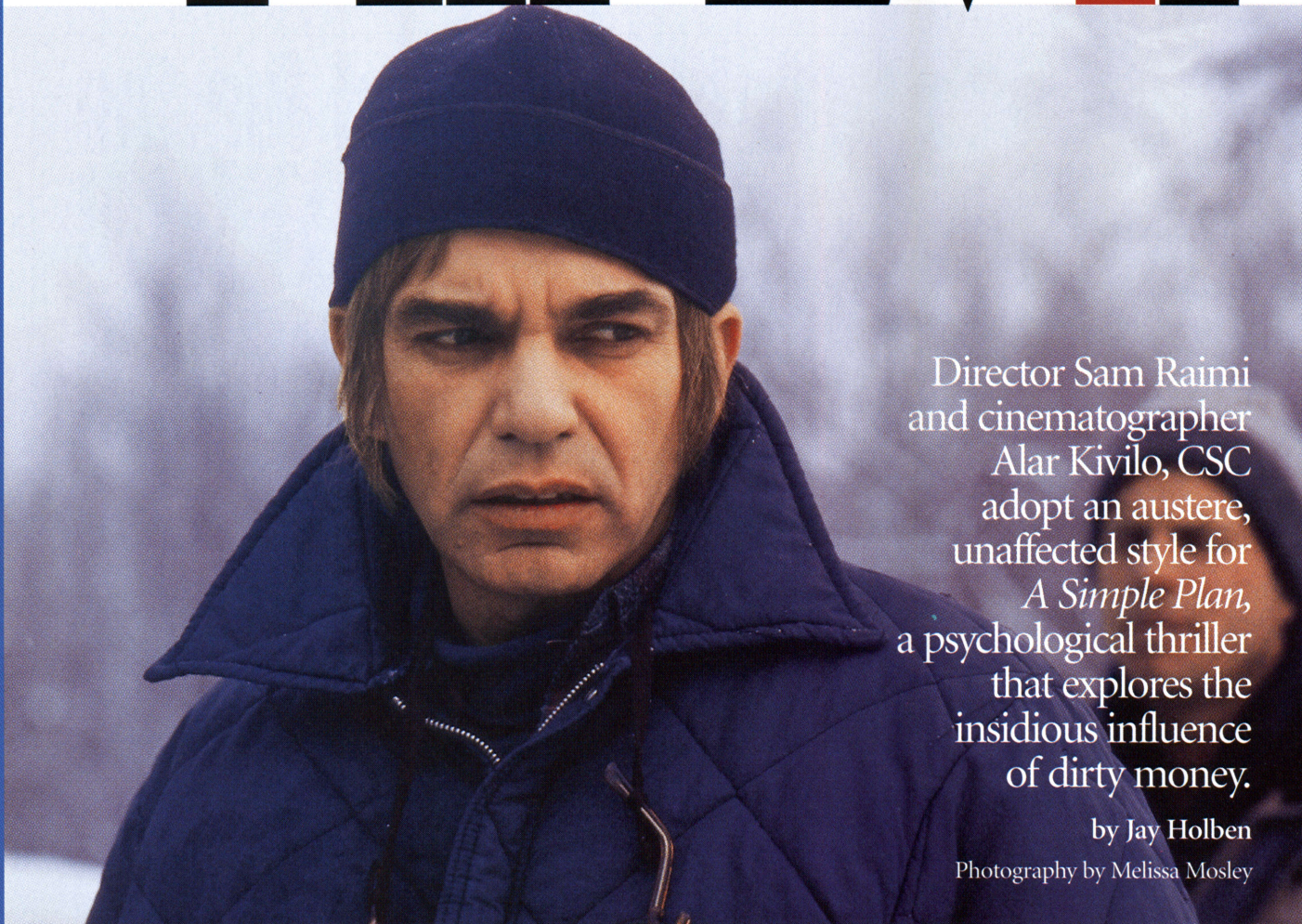
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The Root of All Evil



Director Sam Raimi and cinematographer Alar Kivilo, CSC adopt an austere, unaffected style for *A Simple Plan*, a psychological thriller that explores the insidious influence of dirty money.

by Jay Holben

Photography by Melissa Mosley

In *A Simple Plan*, the quiet existence of two country brothers is transformed into a maelstrom of deception, paranoia and greed when they discover over four million cash dollars in a downed plane. The subsequent lure of instant wealth and a well-heeled life leads Hank and Jacob (Bill Paxton and Billy Bob Thornton) into a

downward spiral, as their seemingly sensible notion to keep the money and avoid detection triggers a chain of events that quickly lead to dire consequences.

In his latest picture, director Sam Raimi makes a considerable departure from his visually dynamic fantasy-film repertoire (which includes the *Evil Dead* trilogy, *Dark-*

man and *The Quick and the Dead*) to create a grounded psychological thriller fraught with moral questions. "This film is definitely a change of pace for me, because it's not about shots, but the performance within the frame," Raimi explains. "I wanted the camerawork to be invisible, and tried to allow the actors to tell this very thrilling story."

The thing that attracted me to *A Simple Plan* is the fact that the hero is an everyday fellow I can relate to. The great characters that Scott Smith created, both in his book and in his screenplay, are people that I know. These aren't bad guys. They're just human beings who make a rash decision and have to live with the consequences; they have to fight to get out of this slowly tightening noose that the money has created around them."

In striving to tighten the noose artfully, Raimi teamed up for the first time with cinematographer Alar Kivilo, CSC, a veteran of both television and independent film whose work on the HBO production *Gotti* earned him a Cable ACE Award, as well as ASC and Emmy nominations. Kivilo's other works include *Weapons of Mass Distraction*, *Rebound* and the mini-series *The Invaders*, which netted him an ASC Award nomination. "I was in Toronto doing a commercial, and I read the script for *A Simple Plan* on my day off," recounts Kivilo. "I got so excited that I called my agent at home and made him arrange a meeting with Sam Raimi. I love character-driven stories. I like the fact that are so many different levels to *A Simple Plan*. There is a great double arch between Hank and Jacob that really brings depth to the film. I'm attracted to projects that actually say something and deal with real people and real emotions."

Kivilo joined the production team just three short weeks before principal photography was scheduled to begin. He quickly found himself immersed in the details of a distant location shoot in Delano, Minnesota. He credits the success of this rapid deployment to his crew: "I was able to bring along the key members of my team, which was very important to me. My gaffer, Elan Yaari, my key grip, Joseph Dianda, and my operator, Monty Rowan, were my backbone, and absolutely essential to the film."

The cinematographer found inspiration for the look of the film in photographs that were shot during the location scout in Delano, prior to his arrival on the show. "I was very taken with the location photos that I saw in my initial meeting with Sam," Kivilo recalls. "All of the shots were very stark, with white snow and black trees. They were very hard-contrast, and reminded me of Japanese wood-cut prints, with very simple and graphic images. [Visually,] this film was a big departure for Sam, who is really known for his crazy camera moves and wild perspectives. We both decided early on that his usual style wouldn't be right for this story."

A primary requirement in Kivilo's choice of film stocks was speed, since the winter days in Minneapolis were exceptionally short. The cameraman did extensive tests before traveling to the location. "I needed a film stock that would maximize my day for me," he explains. "I ended up choosing [Eastman Kodak] 5246 [Vision 250D] for all the daylight scenes and 5279 [Vision 500T] for the night scenes. I also tested the 5274 [Vision 200T], 5245 [EXR 50D], and 5277 [Vision 320T]. The 5245 and 5274 were too slow for us to maximize our day, as we literally had only eight hours of

usable light and [using a slower stock] would have limited that time even more. I found that the 5277 really held up the detail in the white snow quite well, which was nice. But it lacked that starkness that we were going for, so 5246 won out."

Further complicating *A Simple Plan*'s short preproduction schedule was a ripple effect of the infamous El Niño weather anomaly, which led to an unusually warm winter in Delano that left very little usable snow on the ground. The production was forced to move to Ashland, Wisconsin and begin photography there, again shortening the amount of time that Kivilo and Raimi would have to plot their photographic approach. "We really didn't have much chance to narrow down visual specifics," the cameraman explains. "Sam loves to storyboard everything, so terms of the film's look, we began with a rough visual sketch in storyboards. I tried to sit in with him and storyboard as much as possible during those three weeks, but once we got onto the set, we'd switch to a more traditional approach and block the scenes with the actors first to see where their instincts took them. We would then apply the storyboards, modify them, or throw them out, according to what the actors would

Opposite: Jacob (Billy Bob Thornton) slowly begins to feel the psychic weight of deception. Because much of the film was shot in wintry exteriors, Kivilo strove for very graphic, high-contrast images reminiscent of Japanese wood-cut prints. Below: Hank (Bill Paxton) runs into trouble at the home of a fellow conspirator. The filmmakers lit the sequence in a sketchy manner in order to inject a mood of frantic urgency.



Photos courtesy of Paramount.

The Root of All Evil



Kivilo (left) and Raimi convene at the monitor. The duo agreed early in prep to abandon the director's trademark style of wild camera moves and in-your-face cinema.

be doing. I always like to see the actors play the scene and discover where their feelings lead them. Sometimes they're bang on, and sometimes not, but you generally have to take their instincts into consideration when you're covering a scene.

"This whole project was kind of an exception to my normal style," Kivilo continues. "I usually like the photography to have an arc of its own, where it starts off one way and you discreetly increase the drama. For example, as a character becomes more evil, I'll move to wider lenses or spookier lighting or something. However, the changes that the characters [in this film] go through are extreme, so I decided to keep the photography very neutral and never comment on what was going on in the scene. I approached the whole project in a very naturalistic way. I picked relatively neutral lenses, gravitating toward the middle range. As a rule, we kept away from the really long or wide lenses. Our real workhorse was the 40mm, which happens to be my favorite. It's great for moments of drama, and for doing close-ups. It's wide enough for master shots, but it doesn't distort even if you get close to the subject. It's the last lens going toward the wide end in which the lines of the architecture remain straight. Again, we were constantly trying to hew to that simplicity."

Kivilo chose to shoot *A Simple*

Plan with a Platinum camera and a selection of Primo prime lenses from Panavision Chicago. "Sam and I had talked briefly in the beginning about going anamorphic," the cameraman says, "but because of the lack of prep time, a restricted budget [reportedly \$17 million] and lack of lens availability, we decided against it," he reveals.

When the crew returned to Minneapolis from Ashland, they still found themselves plagued by a lack of snow. To solve this problem, the production put together a small group whose sole responsibility was dealing with snow. "They moved snow from one place to another and did whatever was necessary to maintain the look and continuity we needed," Kivilo explains. "In conjunction with the special effects people, they used a combination of real and synthetic snow. Primarily, the unit made their own snow from shaved ice, which made the best match for the real stuff. Anything else was fine to fill in the background, but when we were close, the shaved ice was the best. Of course, another difficulty of shooting in the snow is that every time you do a take, you have to get rid of the footprints. To do that, the 'snow unit' marched around armed with gasoline-powered blowers, rakes and whatnot to erase footprints and make the snow look virgin again."

A Simple Plan opens on a New Year's Eve afternoon when Hank and Jacob take a trip to their father's grave, accompanied by Jacob's slovenly friend Lou (Brent Briscoe). Their return trip is inadvertently detoured when Jacob's dog takes off into the forest after a fox. As the trio venture into the woods to retrieve the dog, they stumble upon the wreckage of a small aircraft. "Outside, our basic plan was to hope and pray for overcast weather," Kivilo says, laughing. "We wanted to avoid blue skies and sun, and we were lucky for the most part. On overcast days, I would simply employ some negative fill so

that the light wouldn't bounce around as much from the white snow. We covered the ground with solids and brought in more solids on one side to give the light more direction. Then, for close-ups, we'd shape and refine the light slightly with a bit of bounce fill off a card. During the few days when the sun did come out, I wanted to bring in a big crane with a huge silk to take care of the situation, but again, budgetary factors didn't allow it."

Raimi and Kivilo instead turned to digital technology to pick up where nature left them short. "We've replaced all of the blue skies with CGI [cloud cover]," Kivilo explains. "Also, sometimes when we were moving into coverage, it would start to snow, or stop snowing, and we'd have a continuity problem. CGI effects were a real lifesaver in those situations as well. There is a certain compromise involved when you're doing drastic changes in CGI — like making a bright sunny day into an overcast day — because it never really looks quite the way it should. But digital effects certainly do help to bridge the gap."

Part of the film's signature visual style resulted from Kivilo's graphic approach to the daytime exteriors. The stark, almost blinding whiteness of the snow is a refreshing departure from the traditional, slightly blue, cold look. "I was letting the snow go about three stops over," the cinematographer offers. "I was usually exposing at about an f5.6 outside, but the snow would be reflecting back an f16 or more. By overexposing it that much, the snow gave us really blinding whites and we'd lose detail, which for most applications was great. However, there were a couple of scenes in the film in which footprints in the snow were an important element of the story. Because of the overcast conditions and the contrast created by the way I was exposing, we would occasionally have to paint in the foot-

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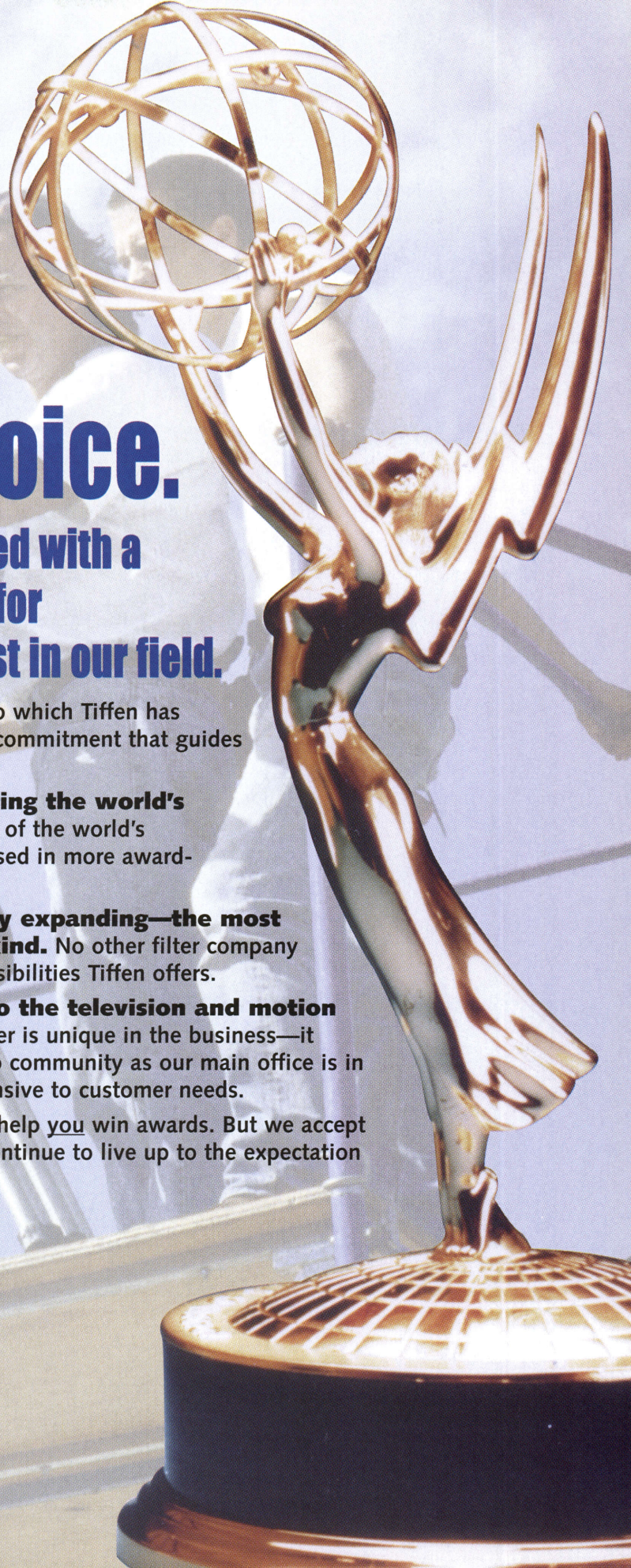
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The Root of All Evil

prints to make them readable. Someone from the art department would walk backward through the footprints with water-based spraypaint and darken in the shadow side of the prints so they would read better.

"To keep the visual look simple, we were also constantly pruning the vegetation, getting rid of trees and simplifying the actual locations elements. We tried to stick to

that Japanese wood-cut look, which is almost monochromatic. The film is such a grim, cautionary tale that we wanted it to have a nearly black-and-white feel to it."

As the tale's central trio begin to explore the downed plane that remains partially buried in the snow, Hank ventures inside and discovers more than just a nest of crows and the remains of the pilot — he uncov-

ers a large duffel bag stuffed with bundles of cash. To shoot the aircraft interiors, the production moved into a soundstage in Minneapolis, and recreated the snowy surroundings to allow greater control over the situation. "In order to facilitate not only the camera squeezing into the tight spaces of the plane, but also the puppeteers and the animal handlers who were dealing with the animatronic and live crows inside, we wound up placing the fuselage on an elevated platform about five feet off the stage floor and cutting several holes in the bottom of the plane," Kivilo reports. "For the interior shots, I tried not to take undue advantage of the fact that we were on a stage, so I primarily used the light that came through the windows of the plane."

Gaffer Elan Yaari details the setup, explaining, "We hung a 40' by 40' overhead muslin bounce about 25' above the floor and pumped a bunch of HMIs into it — 18Ks and 6Ks — to give us a basic ambiance level, which was pretty close to the f5.6 that we had outside on location."

"I continued to use the 5246 while shooting inside, maintaining continuity with the exteriors, so I was fighting to get a decent exposure with 250 ASA," Kivilo says. "The challenge became providing enough light [outside the plane] for my main source of illumination inside, while at the same time controlling the windows so they wouldn't burn up too much. I had to play with the ratios a bit inside. When we were seeing a window, I'd use the off-camera window for the key and then cut down the on-camera window with more snow, ice, and nets outside so that it wouldn't blow out in the frame. I used Kino Flos to augment what was happening inside for a few shots, but for the most part I let the windows do the work. I was trying to keep it as real as possible and stay far away from something that looked as if it was shot in a studio."

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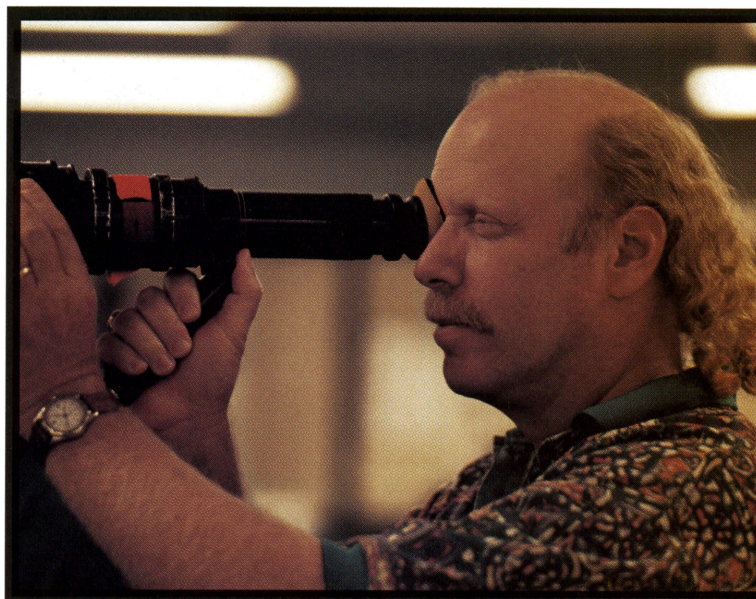
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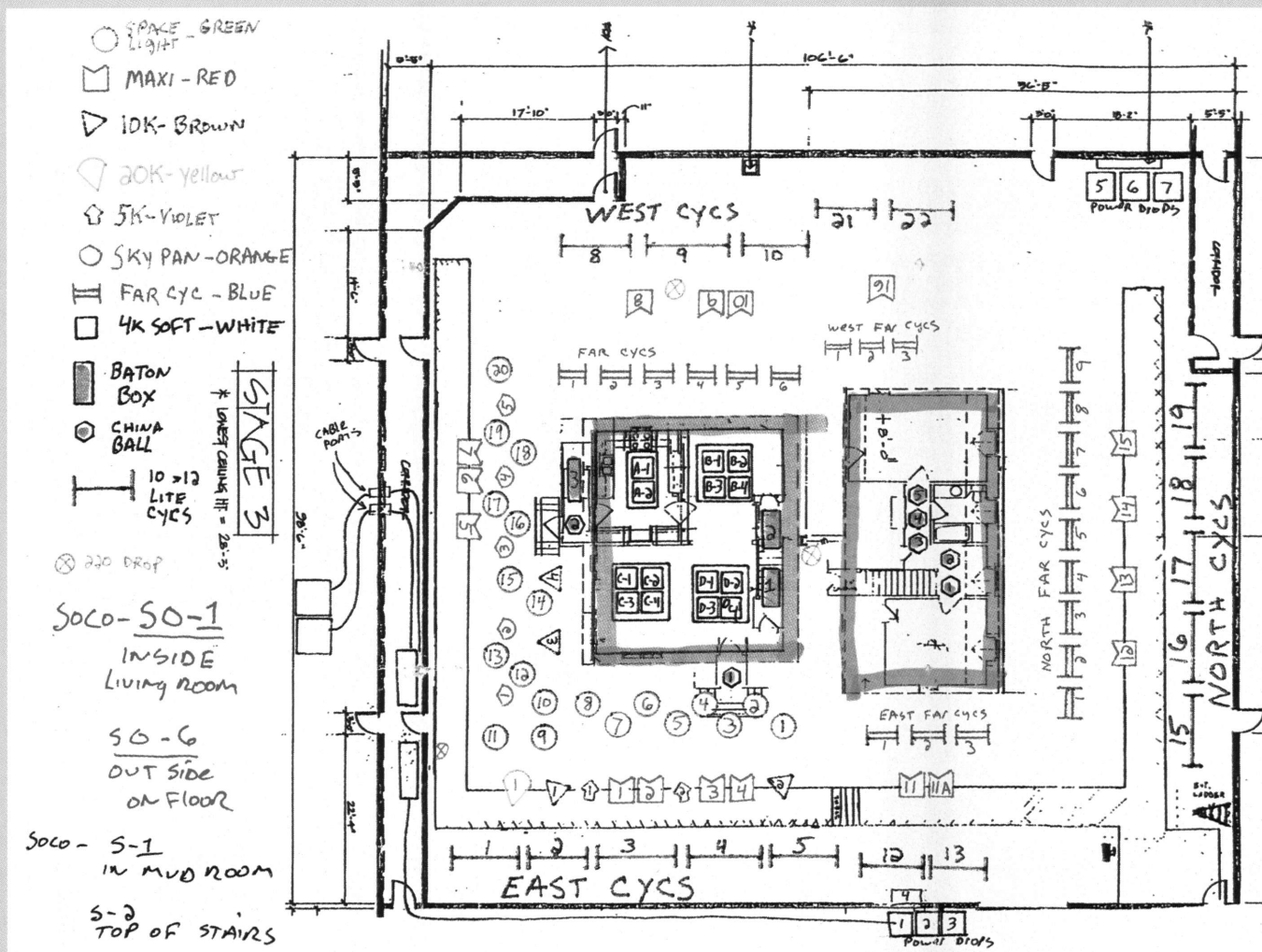
1994
87th Precinct

1994
Bye Bye Love

1991
Thirtysomething

1991
Brooklyn Bridge

Simple Plot



This stage plot, drafted by gaffer Elan Yaari, depicts the hanging rig for the Mitchell house built on stage in Delano. The leftmost structure (highlighted in purple) is the bottom floor of the Mitchell house, with the kitchen at top left, dining room at top right, living room at bottom left and the entryway foyer at bottom right with the stairs proceeding to the second floor.

Above each area of the first floor are 4K softlights (designated A-1 through D-4) were controlled by the dimmer packs indicated by two rectangles in the corridor at the bottom left of the diagram. Just inside the walls of the stage, the production circled the sets with four photographic backgrounds. The leftmost background was lit with 12 6K Space lights (indicated by green circles, numbered 9 to 20) augmented by five Sky Pans (orange ellipses numbered 1 to 5).

For the daylight sequences, two Maxi Brutes punched over the photographic background and through opal and bleached muslin through the window just above the sink in the kitchen (indicated by red pentagons 6 and 7), while another (number 5) played through a window in the living room along with two 10Ks with Chimeras (brown triangles numbers 3 and 4).

Outside the kitchen, the art department constructed the brick facade of the neighboring house. The 10-Light Cyc units, originally designed to backlight the photographic backdrops (labeled "East Cycs," "West Cycs," and "North Cycs") were eliminated in favor of frontlighting the drops with Far Cyc units (numbered in sections "Far Cycs" 1 to 6, "West Far Cycs" 1 to 3, "North Far Cycs" 1 to 9, and "East Far Cycs" 1 to 3).

For the upstairs of the Mitchell

house (the rightmost structure highlighted in green) Yaari and cinematographer Alar Kivilo again played Maxi Brutes through the windows (numbers 11, 11A, 12 to 15, and 16) and used China balls for the hallway illumination.

For the nighttime look, Yaari would turn off all of the Maxi Brutes, Space Lights, Sky Pans and Far Cycs, except for one or two, to achieve roughly a 4' lambert glow off the drops, just enough to read a hint of the drops through the windows. "We wound up pulling in both of our 1200 amp generators off the trailer," explains Yaari, "as well as power from the cans on stage and the stage next door so that we had around 6500 amps. We never had everything burning at once, but the idea was to have everything ready at the flick of a switch."

— Jay Holben

the three men argue over the prospect of keeping their find. A decision is finally made and the trio spends hours carefully counting their haul before heading home. Night has fallen and they are met on the roadway by the town sheriff, Carl (Chelcie Ross). The men frantically hide their treasure from the lawman, and the tension begins to rise — along with their feelings of deviousness and paranoia.

Faced with the prospect of lighting this large night exterior — surrounded by a blanket of white snow and without any justifiable means of practical illumination — Kivilo turned to a fairly new tool with mixed results. "Maybe this is a good cautionary tale in itself," he offers. "We used a helium balloon light for the night exteriors on the roadside. It was a logistically tricky location because we were on a small road with two snow fields on either side, so there was no place to drive in a crane or a Condor. The balloon seemed to be a perfect solution. We could fly it up so that it would hover just above the road, and then hide the black cable in the night sky. What I didn't expect was that it got really windy during the night we were shooting. I was operating the second camera, looking at the wide shot of the sheriff's truck approaching, and as the wind was gusting I kept seeing the balloon getting lower and lower in the frame. It never quite dropped into the picture area, but it made me very nervous. Then, at one point in the middle of the first take, the wind blew the balloon into a power line and it made a huge spark. Thank God no one was hurt and there was no damage, but we did lose quite a bit of time. We really hadn't factored the wind into the equation, and because of the white snow surrounding the area, we really couldn't attach extra lines. I thought the light that the balloon provided was perfect — a nice ambient glow and a beautiful night softness — but I was very

uncomfortable with it after that first night. On the second night, when we returned to shoot the reverses, I went with a more traditional approach."

Gaffer Yaari explains, "We lit the second night by bouncing an 18K and Maxi Brute off of a 40' by 40' muslin. We put it about 30 or 40 feet away and left both instruments clean to combine the 5500°K and 3200°K for a slightly cool mix."

After their encounter with the police officer, the three men go their separate ways, vowing not to tell a soul about the existence of the money. Hank is the first to violate this pact, returning home and immediately asking his wife, Sarah (Bridget Fonda), what she would do if she found a substantial amount of seemingly unclaimed money. Sarah protests, taking a strong moral stance until Hank dumps the \$4 million dollars on the dining room table. Faced with real greenbacks, her morals quickly crumble.

Kivilo chose to illuminate these interiors in a very warm and intimate style. "There was something intriguing about a nice, warm, uncorrupted home, with a normal husband and wife expecting a little child, being invaded by this evil," he muses.

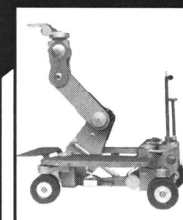
The Mitchell house was built on stage in Minneapolis, where production designer Patrizia Von Brandenstein (an Academy Award winner for *Amadeus*, who had previously collaborated with Raimi on *The Quick and the Dead*) accentuated Kivilo's lighting strategy with comfortable surroundings that stood in contrast to the looming threat that would eventually consume the family. Yaari details, "We prerigged the whole stage so that no matter where Alar wanted to look, we were prepared. Practically the whole stage was on dimmers [see diagram, opposite page]. My ideal scenario was to have everything on a dimmer — not necessarily to control exposure, but to be able to turn fixtures on and off

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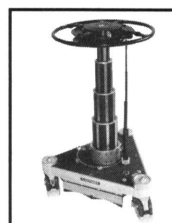
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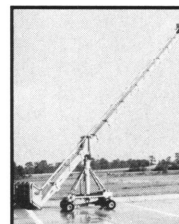
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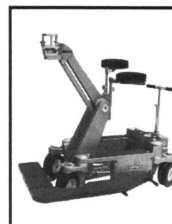
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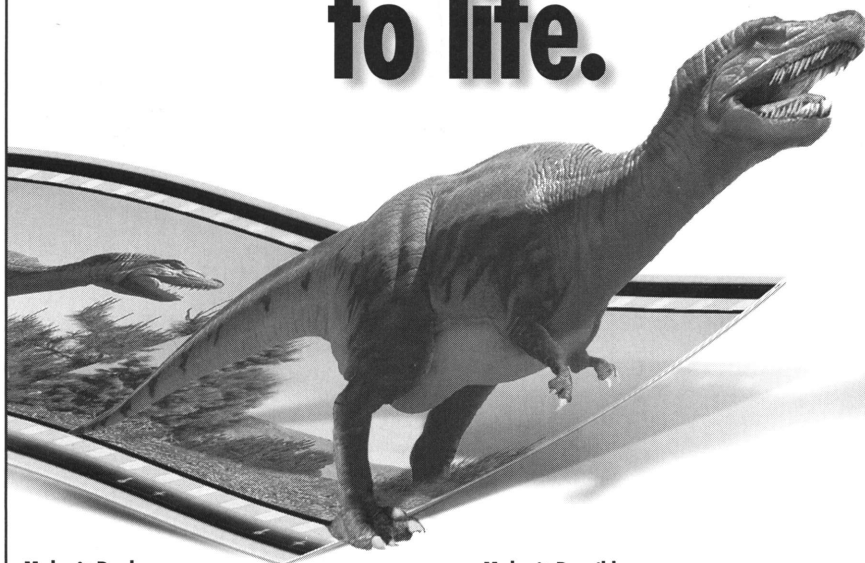
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The Root of All Evil

quickly. Instead of a half-hour of down time between setups, it might take five minutes to switch over the channels and adjust the floor instruments a bit.

"I hung a couple of Maxi Brutes at any opening off the greenbeds — doors or windows — and diffused them with a layer of opal and then a 6' by 6' piece of bleached muslin. We'd turn those on for the daylight scenes and get about an f2.8 in the windows — just a nice soft glow. [Key grip] Joey Dianda's team had to tease the Maxis pretty heavily to keep spill off things, but at about 20' away, they really gave a beautiful light. We put those on the dimmer board as well, through a whole rack of 12K dimmers right next to a rack of 2.4K CD-80 dimmers for the floor lights and practicals.

"For the night scenes, every now and again I'd bring in something hard, like a cool 10K with 1/2 blue on it, and play it a stop or two under key through a window. Over the sets, Alar had us hang softboxes that were made up of four 4K soft lights hung over 6' by 6' bleached muslin. Again, softness was the key and the 4Ks were all run through the dimmer board. I could bring up three or four units and we were ready to go. We used a bit of coloration for the interiors, sometimes 1/4 or 1/8 straw, and most of the practicals were dimmed down to about 75 or 80 percent. For the floor keys, we would use two Kino Flo Image 80s — one on top of the other — as one source. We'd then put on a couple layers of diffusion, like an opal, 250, or light gridcloth, depending on the mood, and then an 8' by 8' or 12' by 12' piece of bleached muslin. The Kinos are soft to begin with, but they've got a little bit of edge, so if you put any kind of diffusion in front of them it quickly gives them the feel of a bounced source."

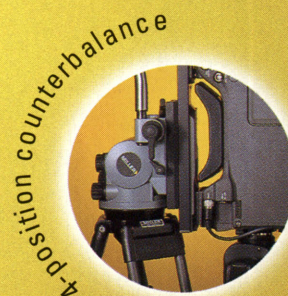
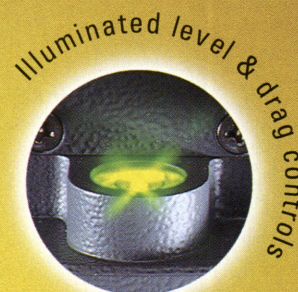
For moodier moments, Kivilo used hard light reflected into the sets

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The Root of All Evil

using beveled mirrors. "I'd pick a dead corner of the set and have Joey black it out so no light was there," The cameraman explains. "I'd then aim Par cans or sometimes HMI Pars into the mirrors and splash light into random spots on the set. I'm always searching for the best kinds of slashes, which have an organic feel, and these beveled mirrors provided that. It was perhaps the only slightly stylized addition I made to our otherwise simplistic regime, in that there was no logical source for that kind of light; my thinking was that it was perhaps coming from a street-light outside or something. Those scenes were about mood, and it was great to use the mirrors rather than backlight an actor. I'd just bounce a slash into the background and silhouette them against the set."

In fact, an interior scene offers one of Kivilo's favorite shots in the picture. "It takes place late in the film, after the sheriff has found Jacob drunk at the scene of a grisly double murder," the cameraman says. "The sheriff brings Jacob to Hank's house and Hank puts him into the baby's room on a day bed. We had the camera right on the deck below Jacob, with a 40mm lens looking up at him with Hank standing in the background. We're in this warm, comfortable room that's been invaded with emotions of paranoia and guilt, and Jacob asks, 'Do you ever feel evil, Hank? I do.' I like that moment. It's the contrast of the visual elements with the psychology of the story at a very low point in the character's lives."

For a key scene that thrusts the brothers miles past the point of no return and results in the death of not only Jacob's friend Lou, but his wife, Nancy (Becky Ann Baker), the filmmakers chose an abandoned house in Minneapolis. "It was a very difficult location," Kivilo recalls. "It was an abandoned house with very low ceilings and no heating, so we were all bundled up in parkas. Because the

on the edge of the millennium



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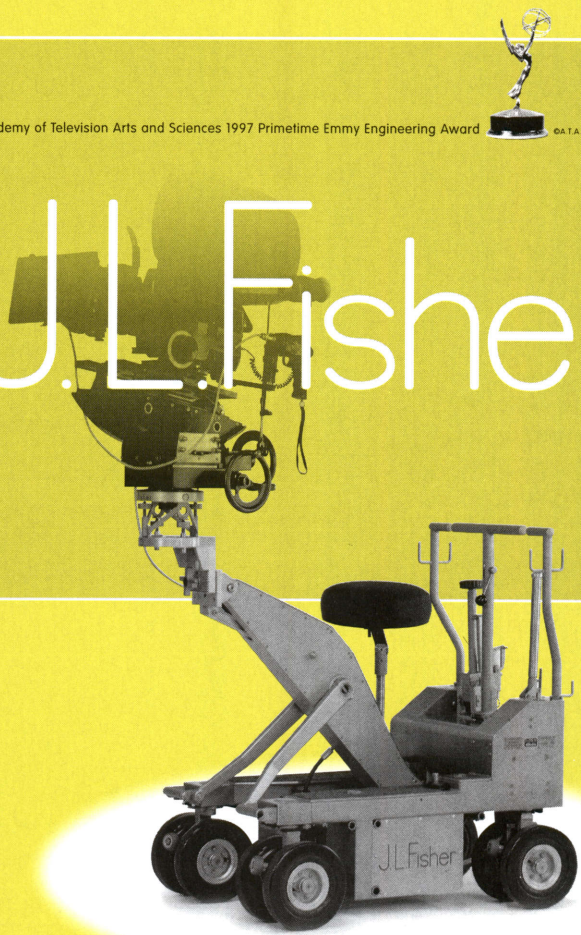
performances were so intense, Sam wanted to shoot the scene with at least two cameras, and sometimes three. Lighting for three cameras is a significant compromise, but it was one I was willing to make to lessen the emotional load on the actors.

"After Lou is shot, Nancy runs into a dark kitchen, where I had pre-established a bit of light coming through a window to silhouette her as she runs to a drawer. Hank steps into the kitchen and is also silhouetted [by the light from the living room]. He turns on the kitchen light to reveal Nancy holding a gun; she fires and hits the light switch, which, after a great spark, thrusts the whole kitchen into darkness again. She shoots several more times, with the muzzle flashes providing sketchy details of the encounter, until Hank fires his shotgun and kills her.

"The idea was to keep things quite sketchy in the lighting and not be clear about exactly what was happening. For the overall kitchen light, we hung a China ball from the ceiling, which would reveal Nancy with the gun. Two prop guys — one facing Nancy and one sneaking in toward Hank — used those old flash photo guns to create the muzzle flashes. Those flash guns are great because they have a long burn time and you don't run the danger of having the flash occur between exposures. The flashes were daylight-balanced, but we put double CTO on them to give them a slightly warmer feel. This was something that we had determined through testing in preproduction.

"This is a tricky film to talk about," Kivilo concludes, "because the whole visual approach was to keep it simple and not obstruct the story. It's all about the aesthetics, and we really tried — especially on the exteriors — to keep that Japanese wood-cut aesthetic going. For *A Simple Plan*, it was a simple shooting style."

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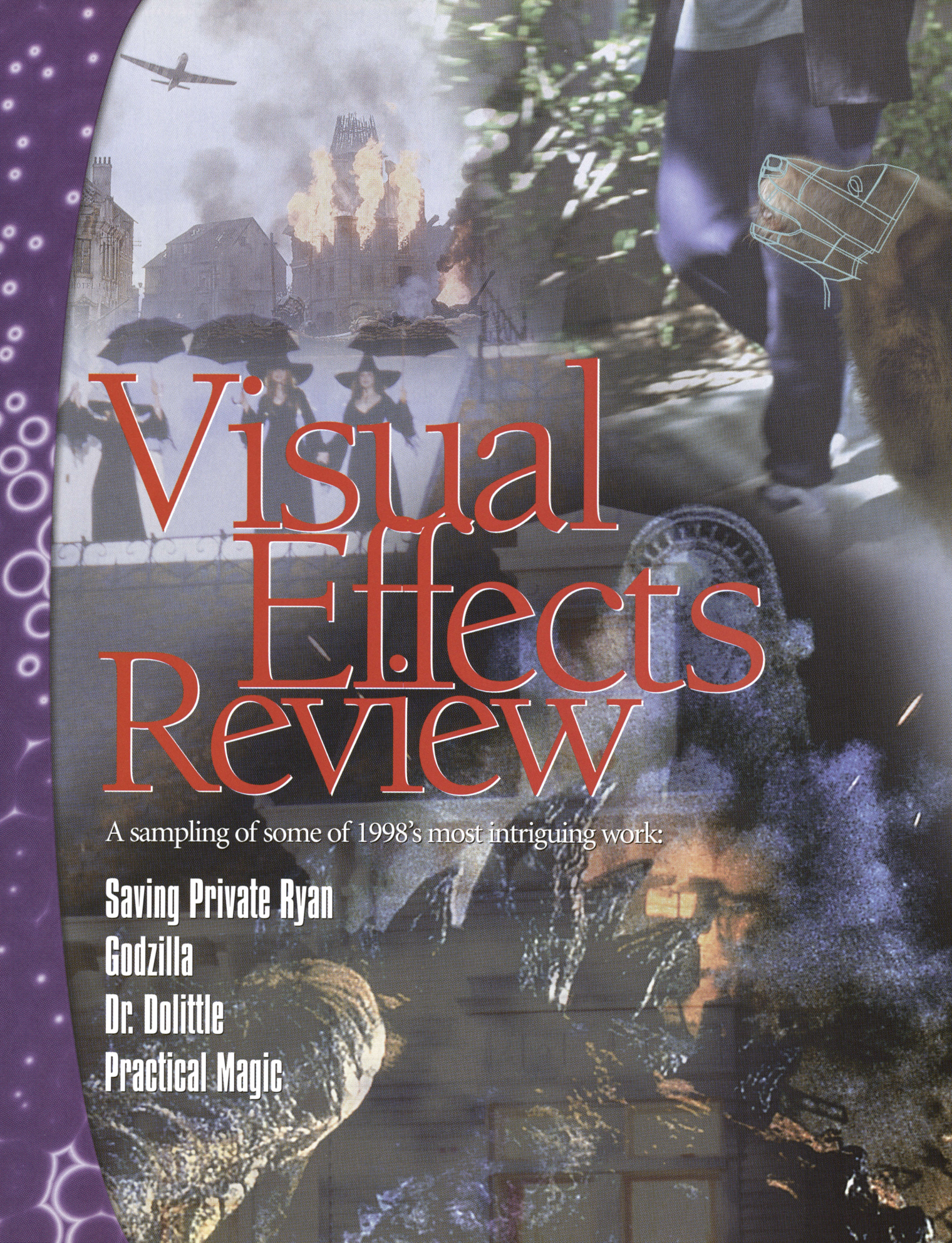
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Visual Effects Review

A sampling of some of 1998's most intriguing work:

Saving Private Ryan

Godzilla

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Practical Magic

Blood on the Beach



Director Steven Spielberg and his platoon of effects experts discuss the visceral impact of *Saving Private Ryan's* D-Day sequence.

by Ron Magid

Photography by David James

There have been few cinematic depictions of combat as vivid and uncompromisingly accurate as those presented in director Steven Spielberg's *Saving Private Ryan* (see complete production coverage in AC Aug. 1998). But the picture's aesthetic approach also took its toll on those responsible for its special and visual effects; it's hard to feel giddy about creating the perfect explosion or fatal wound while knowing that somebody suffered such trauma in real life. Consequently, *Ryan* was both a privilege to work on and the most grueling of projects, blending the work of

veteran practical special effects supervisor Neil Corbould with some 40 digitally enhanced shots from Industrial Light & Magic's visual effects supervisors, Stefen Fangmeier and Roger Guyett.

Spielberg is one of a very select group of directors who has pushed the lexicon of cinema through visual effects. Beginning with *Jaws* and continuing through *Close Encounters of the Third Kind*, the *Indiana Jones* trilogy and two *Jurassic Park* films, he has always sought ways to more effectively reach his audiences via visual trickery. But when Spielberg unleashed this ability in the wrench-

ingly emotional *Ryan*, the experience was universally devastating. "We all determined very early on that we wanted to affect people in a way that would maybe show them the nature of war for the first time," Spielberg offers. "[We also decided] that we would risk not entertaining anyone or not having anyone attend any of the performances. One of the nice things about having my own film company, DreamWorks, in collaboration in this case with Paramount, was that figuratively speaking, we were the bank. That gave me a lot more courage than if it had been somebody else's money. We all weighed the risks against the results and thought, 'It's worth the risk.'"

Spielberg was far more risk-averse when it came time to shoot the picture's combat scenes, however. Safety was a key issue throughout production. "I was very lucky to have Neil Corbould as my physical effects supervisor, because he worked as fast

Photos courtesy of DreamWorks, SKG.



Opposite: American troops are pinned down by enemy fire on Omaha Beach. Bloody prosthetic and squib effects were augmented by CGI work to intensify the D-Day sequence. Left: ILM pieced together this beachhead panorama, utilizing motion control while shooting multiple passes of the soldiers on the beach, and later adding the Allied armada.

and as safely as I felt I did," the director says. "Neil had an amazing crew, Trevor Wood and Clive Beard, and that triumvirate was just like an assault team."

Corbould practically grew up on movie sets. As a teenager, he landed his first job in practical special effects on the 1979 version of *Superman*, working for his uncle, the legendary Colin Chilvers. He then gained experience working for Martin Gutteridge on *The Elephant Man*, *Amadeus* and the musical *Little Shop of Horrors*, and later collaborated with John Richardson on the James Bond films *A View to a Kill*, *The Living Daylights* and *License to Kill*, on which he received his first floor supervisor credit. Corbould served as a senior technician (or floor supervisor) on *Cutthroat Island* and *Cliffhanger*, then graduated to special effects supervisor on *The Fifth Element* (for which he earned a British Academy Award), and the upcoming action thriller *Entrapment*. His next project is director Ridley Scott's sword-and-sandal epic *Gladiators*, also for DreamWorks.

While concluding practical

effects work on the U.K.-based *Event Horizon* just before joining *Ryan*, Corbould discovered that Spielberg would arrive in England only a few short days before shooting was to commence. He immediately suggested conducting a video conference between England and L.A. to find out exactly what the director expected. But even after this electronic meeting of the minds, Corbould still couldn't fully imagine at the challenges that awaited him.

The day before shooting of the D-Day sequence commenced, Spielberg walked the Irish beach that would double for Normandy with Corbould, telling him what he wanted to see. It wasn't what the latter expected. "I was a bit worried," Corbould allows. "We were gearing up to [shoot the sequence in] short takes. But on the beach, Steven said, 'I remember seeing this Japanese film in which from the beginning of each take to the end, there were bullet hits, so as soon as I shout 'Action!' and until I shout 'Cut!', I want to see bullet hits.' Suddenly, I thought, 'I haven't got enough squibs to do that!' His directive threw us into a

mild panic for a while. We had enough squibs for about a week of solid filming, but there was a mad rush to get more sent over from America."

It wasn't simply for the sake of spectacle that Spielberg wanted hundreds of bullets to be hitting the sand of Omaha Beach throughout every shot. In *Saving Private Ryan*, the combat is not just a setting for the film, but a living, breathing character. "War is a physical energy, a kind of three-dimensional momentum," Spielberg opines. "In that sense, when you go to war, even though the combatants are far off and often invisible to the eye, what they are pouring down upon you has physical manifestations, and I think that's very symbolic of chaos. It's a kind of physical obscenity to have that kind of firepower rained down upon you. It's a beast, and I tried my best to fill up every square foot of Omaha Beach, as well as the [fictional] town of Ramelle, with the manifestations of war."

That goal required a record number of squibs: just over 17,000, by Corbould's count.

Blood on the Beach

Although Corbould is used to working in situations where he only has one or two takes to make an effect work, *Ryan* was more complex because of the elaborate choreography involved in the battle sequences. For safety purposes, no live rounds were used near the principal actors or the hundreds of extras provided by the Irish Army. "The sheer volume was the hard bit," Corbould says. "Almost all of the explosions and bullet hits on the beach were practical. We would rehearse with Tom Hanks and the rest of the cast time

synchronizing switches, so that when we pressed a button, groups of 20 solenoids would pulse out air pressure. With this system, we could have actors and stuntmen walking through all of the bullet hits without any danger."

Corbould's 17-person crew, which expanded to upwards of 40 people for certain sequences, created two different types of explosions on the beach, using air cannons for anything remotely close to the actors, and slurries, high explosives used for mining, in the background. "For the

sand and spread them over an area of about 60 square feet. That was very time consuming to lay in, so we told Steven, 'This is where they are,' and he basically choreographed the action in respect to where we had laid the air cannons. These cannons were instantly repeatable. All we did was shut the valves, fill them up with air again, load some sand and water back in, and then off you go!"

The air cannons were particularly safe and useful for the many horrific shots of soldiers being blown skyward as their arms and legs were blasted off by mines and shells. To depict these graphic casualties, Corbould and his crew worked with amputee stuntmen fitted with fake limbs. "We got the idea from what [*Ryan* stunt coordinator Simon Crane] did on *Braveheart*, but our techniques were different because the battles in that film were all sword-play," Corbould notes. "We brought in about 20 amputees, but only six of them really had acting potential. Once they had their [prosthetic] limbs blown off, it really comes down to grimacing and screaming. After we molded their stumps, I asked [the firm of] Gorton and Painter, who were brought on the production to create corpses and dead animals, to make some limbs for us. They built some very realistic ones using silicon, complete with implanted hair. We then rigged breakaway joint mechanisms on the amputees, which would separate the prosthetic limb from the performer at the right moment. Much of this was done by simply planting squibs into balsa wood joints. After dressing the inside of the arm or leg where the bone and tissue would show, we placed body protection around where the limb was going to blow and tucked in a lot of blood. The hardest bit was making the uniform tear correctly as the squib went off. In the end, we had to rub the material down with glass paper so it was wafer thin. Then we cut the back so that it wasn't attached



Many of the assault's blast and bullet-hit effects were created using a network of compressed air tubes hidden beneath the sand. Air-driven mortars could be quickly reset for repeated takes and were much safer to use than traditional pyro charges.

and time again until everyone got it right. Everyone had to know their cues and know where and when to run, including the camera guys, who were running around filming it all. Between takes, we had eight or nine guys lying on squibs at the same time, so it was a tough spot."

Huge volleys of practical bullet hits on land and in the water were simulated by using nothing more than air. "We put a large grid of air pipes in the water, and dug the beach up and put in two or three thousand feet of air pipes," Corbould states. "We then put solenoid air valves on

slurry explosives, we basically dug a hole in the sand, put a 2" thick metal plate at the bottom with the charge, and then covered it with special sand we had shipped in," Corbould recalls. "It was quite ironic that we were actually bringing sand onto the beach, but it had to be washed and sieved for safety. A rock flying around at high velocity is like shrapnel. We probably had about four to six slurries per take, and if we had time, we tried to load up for a second take, so we could do two takes at a time. For grenade explosions near the actors, we buried eight air cannons in the

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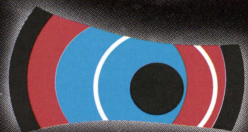
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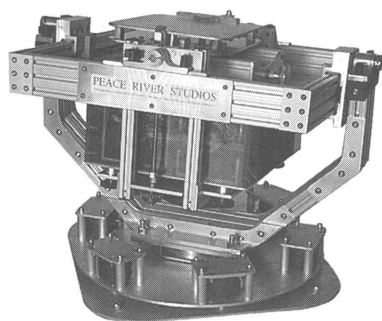


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Blood on the Beach

— otherwise, the material would hang on, which wasn't good for every shot. We had about three guys, including my brother, Ian, working non-stop assembling prosthetic limbs and blowing them apart.

"I also worked a lot with Simon Crane to perfect using the air cannons to fly the amputees up in the air [to simulate the effects of explosions]. They would sit almost right on top of one of them, and Simon attached a wire to their back that was connected to a 50-ton crane. As we let the explosion off, we had a nitrogen jerk ram activated by the same button that lifted the guy up in the air. He then released himself from the wire at the right moment and landed on the beach, with his limb blown off. I think that was very effective."

The incredible reality of the beachhead carnage resulted in a harrowing experience for the filmmakers. "The practical effects gave all of us — the crew, the actors, and myself — a feeling of actually being under combat conditions, and the actors couldn't help but react to it," Spielberg says. "Often we would walk away from a setup with our hands shaking, and it informed everyone's performance. It certainly reinforced me, from shot to shot, how I needed to tell the story. From *Close Encounters* through the *Jurassic Park* films, I've done a lot of movies in which whatever was going to be onscreen wasn't in front of the camera, and I've had to rely a lot on my actors' imaginations so their reactions would be appropriate for what was going to be added in postproduction. But for *Private Ryan*, it was critically essential that everybody understand what it felt like to be fired upon, and the only way to do that was through the use of physical effects as opposed to visual effects. I could not have gotten that sense of reality digitally."

However, there were certain shots that were too dangerous, too complex or too ambitious to create in-camera. For these 40 shots, Spiel-

berg turned to Industrial Light & Magic. On *Saving Private Ryan*, ILM added everything from bullets whizzing through water to an armada of Allied vessels off the Normandy coast. Visual effects supervisor Roger Guyett offers, "I think Steven had the right idea, which was basically to film everything in-camera if possible. But you can't shoot something that is potentially dangerous near your principal actors. That's where we can do things that add an extra level of drama or, to a certain extent, shock value."

Among the contributions that Guyett, fellow visual effects supervisor Stefen Fangmeier, and ILM's artists provided were a variety of digital wounds, which were prevalent in the graphic D-Day landing sequence. "In one instance, we matched a bloodier stump to the end of [an amputee stuntman's] leg after he landed a little closer to the camera than expected," Guyett recalls.

Later in the scene, a hapless G.I.'s helmet deflects an incoming round. Marveling at his luck, he removes the helmet to examine the resulting dent, only to have another bullet immediately rip through his forehead. "That was one of our big shots," Guyett says. "Gonzalo Escudero did a great job making it believable. That was difficult because we were trying to create this bloody spray, which has to have organic, very physical properties, with digital techniques. In another shot, a soldier running down a trench got shot in the back, but there was no blood. Caitlin Content added blood spraying from the wound by augmenting particle systems with five or six hand-painted frames done via [ILM's] Saber [computer platform]. We used a similar technique for another shot in which a soldier gets shot in the head, arm and leg as he's hiding behind a steel beach obstacle."

Although Spielberg and cinematographer Janusz Kaminski, ASC chose to desaturate *Ryan*'s images by

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Blood on the Beach

using Technicolor's ENR process, the director wanted the blood to retain a vivid quality, which created challenges for both ILM's digital crew and Corbould's practical effects team. Corbould's company ultimately mixed their own stage blood to create a hue that would render appropriately onscreen after undergoing ENR, augmenting some pre-made plasma from Screen Face for shots in which Omaha Beach ran red.

At ILM, the ENR process was both a blessing and a curse. Because of the deliberately gritty look of the original footage, ILM's digital artists weren't too concerned about matching the sharpness of the images, but they did have to repeatedly film out each shot to see if their effects stood out by being more colorful than the plates. The ENR process often turned ILM's wound effects brown, so Kenneth Smith created color-test wedges to find the right "red saturation point" for the digital blood. "The ENR process is a bit unpredictable, so we tried our best to balance our effects to the plates," Guyett says. "Some of our effects were fairly subtle, and putting them through the ENR process made a tremendous difference to the contrast relationships and the saturation."

Beyond that, the 45- and 90-degree shutter effects that Kaminski employed to deliberately cause the images to strobe forced CG supervisor Gregor Lakner to heavily research the correct timings for ILM's digital explosions.

ILM also added to the chaos of Omaha Beach by creating digital bullet hits sparking off the steel beach obstacles, as well as the endless tracer fire from the German machine guns. "A lot of our work was adding hits around the guys as they came out of the landing craft, when Steven didn't want the squibs getting too close to the actors," Guyett says. "We also added lots of dirt being kicked up by bullet hits near the actors."

As troops pile out of the Higgins landing craft, many are dragged beneath the waves by their equipment, but the heavy machine gun fire continues to pursue them underwater, with deadly rounds still finding their targets and dispelling the notion that it's safe below the surface. "It's not," Spielberg explains. "Water will slow a projectile down and eventually stop it, but there is still a lethal range of about seven feet.

"The practical effects gave all of us — the crew, the actors, and myself — a feeling of actually being under combat conditions, and the actors couldn't help but react to it. Often we would walk away from a setup with our hands shaking, and it informed everyone's performance. It certainly reinforced me, from shot to shot, how I needed to tell the story."

— Steven Spielberg

That was an afterthought. I never really had that in mind when I was shooting the picture. But while I was in the editing room with Mike Kahn, I thought about how interesting it would look if we actually had the bullets traveling through the water.

"In *Jaws*, when Roy Scheider was firing his carbine at the shark, we shot high-velocity 'fizzies' — little wax projectiles filled with Alka-Seltzer, which gave the effect of bubbles — at the mechanical shark [during several underwater shots]. There were no humans in the vicin-

ity, so we could do the effect practically. But, of course, we didn't have digital effects in 1974."

The addition of these bullet trails add immeasurable impact to *Ryan's D-Day* sequence, especially when blended with Corbould's practical underwater squibs, which send blood billowing in ethereal scarlet plumes. "We actually used that bullet-under-the-water shot in *Jaws* as a reference," Guyett says. "Christa Starr did a fantastic job making the digital bullet models go through the water as realistically as possible and then slowly decelerate. Some of the bullets would then actually stop and just sink to the bottom. Gregor Lakner added the bubble trails using a particle system."

Lest we forget that visual effects can be used to save money, Spielberg offers this testimonial regarding a spectacular shot of hundreds of battleships in the English Channel: "My film cost \$65 million. Had I really gotten that many ships to anchor off Omaha Beach, it would've cost \$85 million. With a few \$100,000 digital effects, I was able to save millions."

Guyett adds, "That panorama, looking back across the cliffs at all of the ships in the water, with all of the troops and barrage balloons and barbed-wire barricades in the foreground, was our biggest shot in the movie. Stefen Fangmeier was the visual effects supervisor on that shot, and he filmed all of the plates using a motion-control system obtained from The Mill in London. Although the shot was planned out fairly well, just putting the motion-control plate together was quite complicated. Only the immediate foreground in the beginning of the shot was there in the plate. Since there were only a certain number of soldiers available, Stefen did four motion-control passes, and kept repositioning the same 400 soldiers all over the beach. Of course, with so many people involved, that can take time, and

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Blood on the Beach

there was an obvious change in the weather on each pass, enough so we couldn't just marry the passes together. Also, there was enough camera motion to present some interesting compositing issues. Since we were going to be adding ships a mile off shore, the slightest bump created huge problems. If the camera moved one degree on the beach, all of a sudden a digital ship a mile away jumped a hundred yards in the air! We put a tremendous amount of effort into stabilizing the plate elements in Saber; then Pablo Helman and his compositing crew put that basic plate together for us, which was quite an undertaking."

Once the plate was in one piece, many different people and techniques contributed to the very complex panorama. "Jennifer McKnew added all of the CG landing craft and barrage balloons in the foreground, plus a couple of trucks," Guyett reports. "There were lots of little details: we put CG characters in the landing craft, and added a CG jeep moving along the beach. Our modeler, Paul Theren, built the P-51 Mustang fighter flying overhead. Then, digital matte artist Matt Hendershot added all of the large ships in the water. The closer ships were more complicated, but the really distant ones were almost 2-D cutouts. Steven's got a tremendous eye for detail, so Matt also added the wakes of the ships out at sea. It was very elaborate."

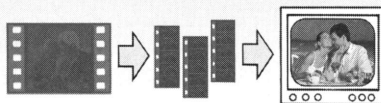
ILM's Saber system, which was used to stabilize and assemble the original plate, came into play at the end as well. "That shot was composited in three different environments within ILM, but with over 200 ships on the water, there were so many levels of density that the final composite was done via Saber," says Pablo Helman, who headed Ryan's three-person Saber unit. "The Saber allows us to do very fast high-resolution compositing, so we're able to turn around more versions of shots.

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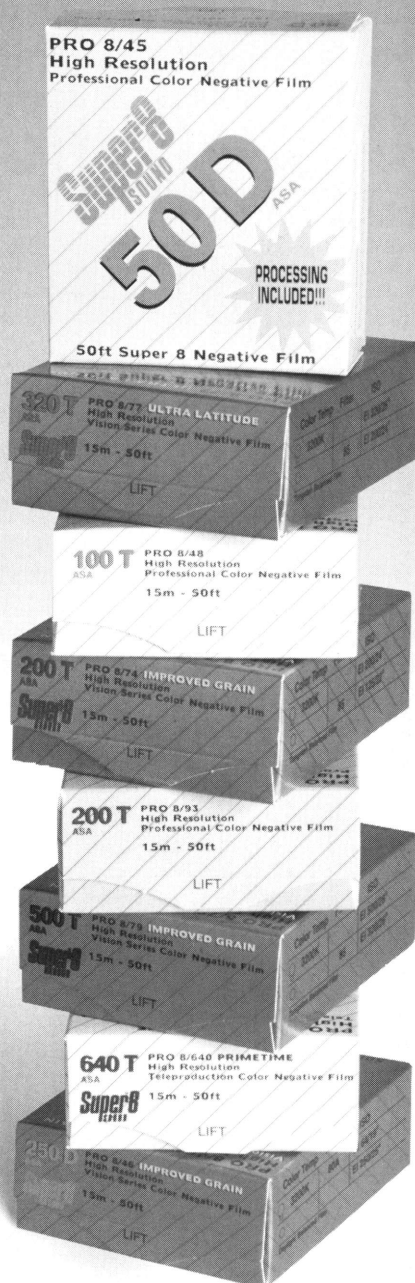


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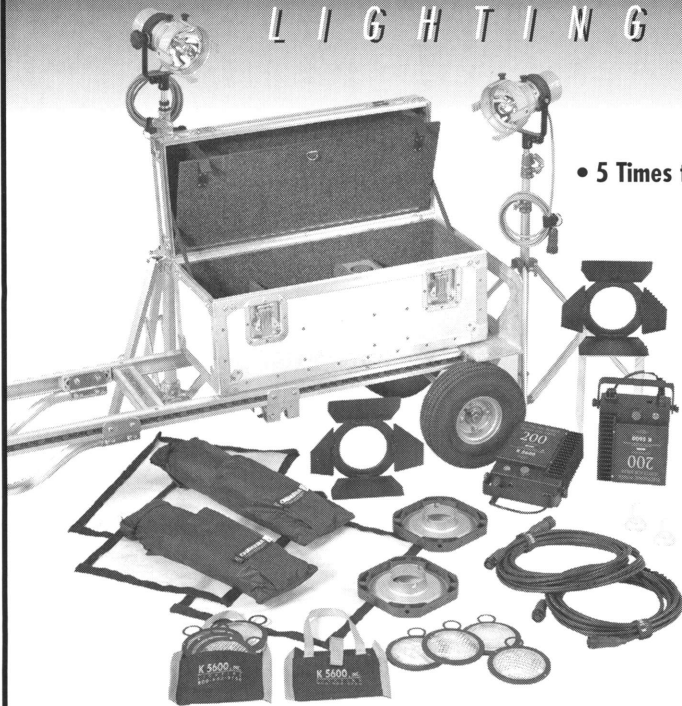
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Blood on the Beach

Saber was used in the last step before the shot went out, because we could color-correct individual elements in context and adjust for the ENR process."

It's important to note that Spielberg's uncharacteristic decision not to storyboard the film further complicated matters for Corbould's practical and ILM's digital effects teams, but deepened the filmmakers' emotional involvement. The director recalls, "I didn't do any storyboards, but I extensively researched the Dog Green section of Omaha Beach, by interviewing veterans and survivors and reading everything I could get my hands on. I knew how I was going to approach the assault. But like all of those heroes of Omaha Beach, I took it one step at a time. I shot in religious continuity, because otherwise I would have become hopelessly lost and I wouldn't have been as emotionally invested. It would've been much more of a technical feat and less of an emotional one, so I started in the Higgins boats and I took one day and one inch of that beach at a time with the whole cast and crew. At the end of the 3½ weeks of principal photography for the Omaha Beach assault, we were ready to wrap the whole movie. We were exhausted, spent, and had nothing left to make the rest of the picture with. Luckily, we had a four-day weekend while we moved from Ireland to England, and I think those extra two days gave everybody a second wind. By the end of that scene, I said, 'This is my movie right here — I'm going home!' I was lucky I had a good story, and where I went from there was the telling of the tale of *Saving Private Ryan*."

Further coverage on *Saving Private Ryan*'s effects, including discussion of the film's final battle sequence, can be found in AC's December posting on the ASC website at www.cinematographer.com.

Tearing Up the Town

Pyrotechnics expert Joe Viskocil wreaks havoc on New York City, with a little help from Godzilla.

by Ron Magid

Photography by Isabella Vosmikova



Photos courtesy of Columbia/Tri Star.

Joe Viskocil, *Godzilla*'s miniature special effects supervisor, is the industry's foremost practitioner of the art of miniature explosions, and he's got the Oscar (awarded for *Independence Day*) to prove it. Viskocil first made his mark exercising his talent for destruction on a little movie no one expected would attract much attention. The film was *Star Wars*, and it wasn't *really* Luke Skywalker who blew up the Death Star.

Viskocil's career began somewhat modestly on the schizophrenic cult classic *Flesh Gordon* — half sci-fi spoof, half porno flick — working alongside several other big-name effects artists who refuse to be implicated. But he insists he was never a closet pyromaniac. "I get asked that question more than anything: 'Did you blow up stuff when you were a kid?' And I always say, 'I had no desire to do that.' I really didn't," Viskocil recalls. "I saw a way of

getting my foot in the door, and that was through miniature pyrotechnics. On *Flesh Gordon*, I begged and pleaded with the guy who built the castle to let me blow it up. He said, 'Okay, go ahead and start testing.' Nobody in Hollywood at the time specialized in that kind of thing, and nobody had the experience. There was no call for it. I created my job."

His ensuing credits, which included *The Empire Strikes Back* and *Ghostbusters*, proved that Viskocil was no one-hit wonder. But it was his outstanding work for James Cameron, beginning with *The Terminator* and continuing through *The Abyss*, *Terminator 2* and *True Lies*, that clinched Viskocil's place in cinematic history as the master of disaster. "My favorite shot of all the movies I've done was blowing up the Miami causeway in *True Lies*," Viskocil says. "I'm also very proud of *Apollo 13*, because it was all supposed to be just like the NASA footage. We had to make it look real."

These days, Viskocil may be most fondly remembered by moviegoers for wreaking unmitigated destruction on the world in *Independence Day*. "That was my *War of the Worlds*," he says proudly. "I treasure

While *Godzilla* was rendered with a mix of CG and animatronic techniques, an extensive array of pyrotechnics was needed to create the creature's path of destruction through Manhattan.

Tearing Up the Town



ing and just tipped the street set sideways so this fireball would come right at the camera.”

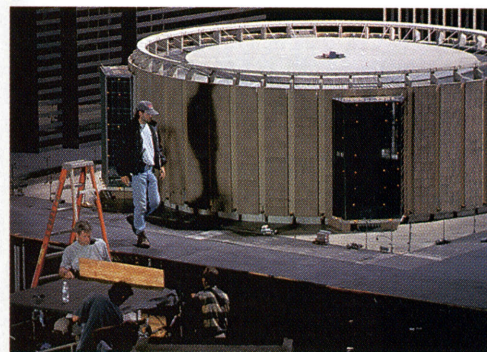
Viskocil believes that the effects he created for *Independence Day*, specifically the destruction of the Empire State Building and the White House, struck such a responsive chord with audiences worldwide because they were achieved primarily in-camera: “That’s one of the things I like about Roland: he likes to do it the old-fashioned way,” says Viskocil. “He likes to get as many elements as possible into the scene, rather than comping them in later.”

Unfortunately, Emmerich and co-writer Dean Devlin’s fast-moving *Godzilla* concept worked against the use of in-camera effects, so they were largely created through compositing. “Originally, they wanted to have a guy in a [Godzilla] suit blast through a section of a bridge, a wall or a building,” Viskocil explains, “but we soon realized that if we were shooting at 200 frames per second, he just couldn’t move fast enough. No matter how fast he whipped himself, he appeared to be moving in super-slow-motion, and he was supposed to be fairly fast. They eventually abandoned a lot of those man-in-a-suit shots.”

Consequently, it was up to Viskocil and his crew of fellow *ID4* vets — including key man Emmett Kane, fabricators Joe Heffernan and Mickey Duff (who machine the rigs that make the pyro effects happen), and Tom Szell, “the master of debris” — to create the destruction wrought by Godzilla. “This show wasn’t just about blowing up models,” Viskocil says. “We had to simulate Godzilla. If his tail crashed into a building, we had to implode it. We had cables that pulled the building in to simulate his tail hitting them, and they would add in the CG creature later. There’s a sequence in which Godzilla goes through an alley, and he’s so wide that he tears up the buildings on both sides with his shoulders. To

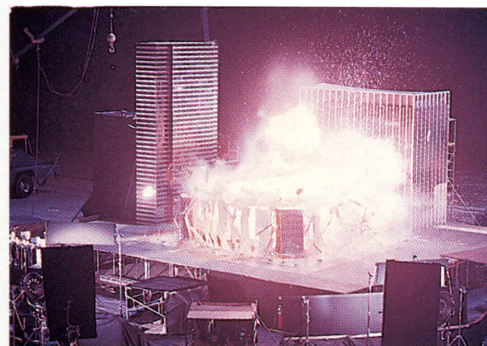


accomplish that effect, we built a giant 2,000-pound plunger that we fired into the set using bungee cords. It was shaped as much like Godzilla’s shoulders as possible, so when it pushed past the buildings, the falling debris and dust would interact believably with that shape. Plus, we shot all kinds of elements: dust,



debris, and miniature and full-sized rain, because the whole movie takes place in the rain.”

This all ran contrary to the tack that Emmerich and Devlin had expected to take. The filmmakers had anticipated that Viskocil and company would take the 1/24-scale



Above: Blast master Joe Viskocil rigs the crown of the Chrysler Building for impact. Right: A series of shots documenting the preparation of the scale-model Madison Square Garden for an impressively explosive end.

movies like *War*, and I try to pattern my work off it and *This Island Earth*, along with Gerry Anderson’s *Thunderbirds* TV series, because they all feature miniature explosions and influenced me to do what I’m doing.”

Now it’s Viskocil who influences the industry, with feats as *ID4*’s infamous “Wall of Fire” effect. “It’s become common,” he observes. “Every movie’s got one.” And yet, that sequence almost didn’t come off. “Originally, [*ID4*’s visual effects supervisor] Volker Engle wanted to do the Wall of Fire with a cloud tank effect coming toward camera, which looked good but not real. [Director] Roland Emmerich was adamant about having a tidal wave of fire going down the city blocks. I said, ‘The only way that fire is going to do that is if we fudge the set.’ Fire has only one way to go, and that’s up. So we locked the camera onto the ceil-

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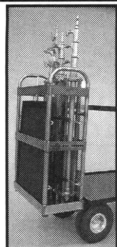
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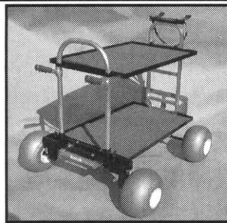


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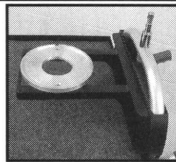
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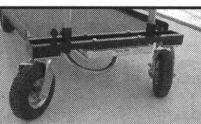
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Tearing Up the Town

man-in-suit creature and/or a 1/6-scale hydraulic Godzilla built by Tatopoulos Designs Inc. and set them loose on the miniature city. Instead, "[The hydraulic] Godzilla was not there, and we almost never used any of that stuff," Viskocil maintains. "We did one shot with a mechanical tail that Clay Pinney rigged, which burst into the bridge of a ship, but that was pretty much it. That was basically done in one take, and it was in the movie after we finished it. But we actually built the rest of our Godzilla rigs from scratch."

The joke of the movie is that, in its attempts to destroy Godzilla, the Army creates more destruction than the big lizard. Viskocil and company, working alongside miniature wrangler Gene Rizzardi, leveled approximately a dozen model skyscrapers, including a few tourist attractions they'd missed on *Independence Day*. "I'm running out of landmarks," Viskocil notes with a laugh. "We blew up the Chrysler Building, Madison Square Garden and the Flatiron Building for *Godzilla*. This time, they wanted less fire and more crumbling."

Viskocil used different techniques to bring down various landmarks. The Flatiron Building was constructed on a "weak knee" system, meaning that the removal of one primary support made the whole thing crumble. "A 'weak knee' is constructed just like a real knee joint," Viskocil says. "It starts straight up, and when the trip is released, it bends and pulls the whole building straight down. It was tricky because we had three separate explosions going off on two sides of the building, and then had to make the whole building crumble down."

Of course, blowing up miniatures is not so easy — a lesson Viskocil learned from his unnamed predecessor on *Star Wars*. "Originally, they had a guy who put primacord into the models, and they were

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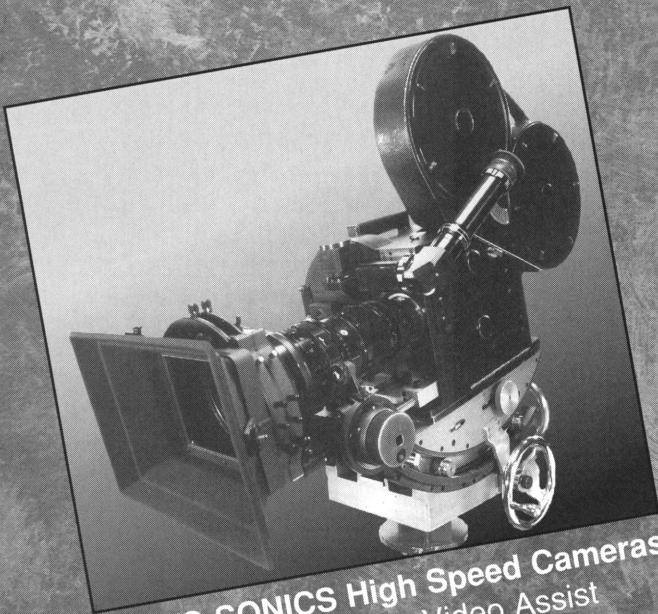


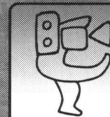
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there one second and gone the next!" recalls Viskocil. "There was no fire, no color, and no texture. You'd see pieces flying, but they shot past the camera really fast. You don't just put pyro in a model and blow it up. There are a lot of variables — film speed, lenses, the scale of the model, what the model's made of — that you have to consider before you actually push the button."

When the Army fires its missiles at Godzilla, the behemoth ducks and the missiles cream the Chrysler Building, blasting its famous spire loose and sending it crashing to the street below. "That was done in two takes with a 12' miniature," Viskocil recalls. "I started off with a small charge to create the impact point where the CG missile entered the structure, followed by the explosions of the missiles going off inside the building. We then did the shot of the spire falling.

Hunter/Gratzner, which built the model, put a device inside it that would tip the whole top portion. We shot high-speed and just dropped that portion of the model, which was designed to crumble into a million pieces, onto the street. I used flashbulbs dipped in an orange gel to simulate explosions as this thing was being blasted by the Army's missiles. The flashbulbs looked like explosions, but they didn't create any smoke to give away the scale. The spire was made of plastic and aluminum foil, so when it crushed on impact, it automatically had a bent-metal look."

To ensure the biggest bang for the buck, Viskocil scores, breaks and otherwise loosens any miniature he is to destroy. "If it's really flimsy, you're going to get a lot more information on film, because you can use a small charge — small in the sense that it's not a really fast explosion,"

he explains. "The slower the explosion, the more information you're going to get on film and the more detail you're going to see. You also have to keep it all in frame!"

For *Godzilla*, Viskocil's crew also made miniature cars fly as they came in contact with the big lizard's feet, and even rigged miniature tanks to fire and recoil realistically. Of course, all of this may simply sound like a more sophisticated approach to tricks which Japanese effects maestro Eiji Tsuburaya used for the original Toho *Godzilla* movies. "You know," Viskocil says, laughing with the realization, "they basically are! The difference is that Roland wanted everything to look absolutely real." ■

(See AC June 1998 for details on cinematographer Ueli Steiger's work on *Godzilla*, and the June ASC Website posting for additional visual effects coverage.)

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Talk Like the Animals

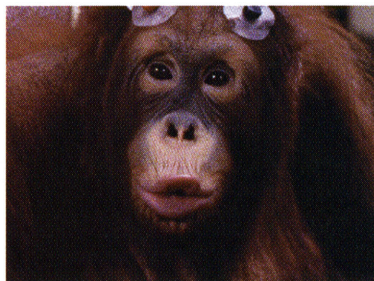
Digital visual effects endow *Dr. Dolittle's* menagerie with the gift of gab.

by Ron Magid

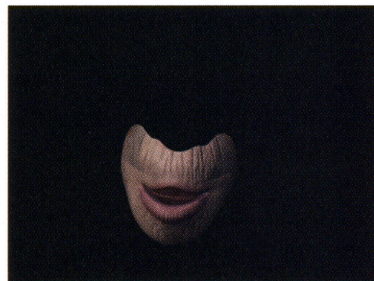


A wisecracking orangutan is given appropriate mouth movements via CG prosthetics timed to sync with the prerecorded human vocal performance.

In *Dr. Dolittle*, Eddie Murphy plays the title role of a kindly veterinarian who believes he can talk to the animals. Making audiences believe that the animals can talk back was the primary goal of visual effects supervisor Jon Farhat, who achieved brilliant results on another Eddie Murphy remake, *The Nutty Professor*, and received an Oscar nod for his work on *The Mask*. A stable of effects houses, including heavy hitters Visionart and POP, as well as



Core Digital Pictures (Canada), Banned From the Ranch, Pacific Title Digital, Cinesite, Computer Film Company and Rainmaker, helped Farhat bravely attempt to



create a vocal menagerie using almost none of *Babe's* Oscar-winning techniques.

Although *Babe's* simple but effective combination of CG and

Photos courtesy of Visionart.

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MAY

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Talk Like the Animals

animatronic animals might appear to be the ideal role model for *Dolittle's* talking zoo, Farhat and director Betty Thomas (*The Brady Bunch*, *Private Parts*) instead decided to go in an entirely unique and untried direction. Farhat proposed using digital techniques to enhance real footage of animals trained to "talk" — or at least move their mouths up and down on cue. "It wasn't yapping or peanut butter," Farhat explains, referring to two time-honored techniques for making animals appear to speak. "Instead, our animal trainer, Mark Forbes, would move his hand up and down, and the animals would open and close their mouths several times. We then digitized and manipulated that footage, editing and time-compressing the images, so we were always playing with moving photographic information."

Working with CG and digitally manipulated animals meant not only recording all of the animals' dialogue first, but also shooting virtually all of the scenes of Murphy and others interacting with them ASAP — with the photographic duties handled by cameraman Russell Boyd, ACS. "Nothing on the show could proceed until there was locked dialogue," Farhat says. "The sound issue just complicated things logarithmically. The other really tough issue was dealing with comedy, which requires performances and cutting. Plus, with an improv actor like Eddie, we had to allow for ad-libs too. It was tough getting Eddie to perform while the trainer was saying, 'Sit, stand, roll over.' Essentially, we were doing *Roger Rabbit* with real animals."

About a third of *Dr. Dolittle's* 350-plus effects shots were handled by POP, including making lead characters like Rodney the guinea pig and Lucky the dog pontificate on demand, chores the firm shared with Visionart. The footage of the animals opening and closing their mouths on command gave Visionart

and POP's animators a basis for their animation cycles, but it was impossible for the trainer to get them to move their mouths in rhythm with the actual dialogue. The animators therefore built a performance using skip frames to create an animation cycle, then used morphs to smooth out the transitions. "We're manipulating footage of real animals moving their mouths, using 2-D animation to simulate and sync up their mouth movements with the actual dialogue," explains POP's lead animator and compositing supervisor, Jennifer German, who spearheads a small but dedicated four-animator team working on *Discreet Logic Infernos*. "If I wanted Lucky's cheek to move up as he was talking, I just cut out a hole and slid the cheek around with a real soft matte on it. If I did that with enough layers of stuff, I could actually simulate it moving just the way it would really move. Then, because there's no way to make a dog hold its head perfectly still, I had to do a lot of tracking of the animation to the original photography. Lastly, I did a 2-D x-y-z move to put the original plate back over the animation, which gave our character the fur and muscles that would actually be there."

Building the performances on the *Inferno* was made considerably easier by the software's audio capabilities, especially when creating that all-important, delicate lip-and-tongue movement. "We didn't use charts as a reference for the lip movement," German says. "We mainly used film that was shot of the actual actors recording their dialogue, and we also looked into mirrors and used each other to see how we'd say a line. We tried not to exaggerate the animation. On the *Inferno's* audio track, we could see exactly where the character was talking and stopping, how loud it was and how big the syllables were; we used that as our graph to draw all of the cadence points.

People don't enunciate every syllable or close their mouths all the way, so it's a real art to get the timing of how a mouth turns up and closes. We just kind of got a feel for it and did it."

German and her team also used "a lot of eye movement and expressions to give each character a little more personality to go with the voice. For instance, Rodney the guinea pig was voiced by Chris Rock, so we gave him cute, chubby lips and buck teeth. He also moves his eyes a lot, which goes with the voice and makes him seem more human."

Another 80 shots were parceled out to Visionart, which was concurrently working on *Godzilla*. Unlike POP's shots, the lion's share of Visionart's talking-animal work was 3-D, involving everything from muzzle replacement to full head replacement on a given animal actor. "Our CG models were hand-modified or hand-built, based on photographs," says Visionart's executive vice president, Josh Rose. "Funnily enough, we were able to rework existing models we had created for commercial work and whatnot. We had several dogs and a raccoon model, which we were able to rework for a possum. We tried to reappropriate models for the goat and the sheep, but wound up having to build specific models for those characters. Then we mapped photographic textures back onto each character, which were either pulled from high-res scanned photographs of the particular animal or, in many cases, actually projection-mapped off the original plate, which was the only way we could make the effects appear seamless."

The key to creating successful talking animals, Rose insists, was keeping a real animal's eyes, even when much of its face was CG: "The eyes are so much of what brings them to life," he says. "On many of the close-up shots of Rodney the guinea pig, we ended up doing

muzzle replacements; almost two-thirds of his head was 3-D, but we kept his real eyes. For the cat, the real eyes were also kept — the computer graphics feathered off about half an inch all the way around the mouth. The only animals we did CG eyes for were the sheep, because they were chewing so much and their entire bodies moved. We had to replace large enough portions of them so

you wouldn't see our CG animation sliding over their real bodies."

One of Visionart's most challenging creations was a Spanish-speaking orangutan. Rose recalls, "Jon Farhat tended to find out what Betty and the producers were most excited about at the time, and then just embellish it. They were loving the orangutan, so Jon came in and grilled us really hard on that. Betty

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Talk Like the Animals

really wanted to see the sensitivity and the specularly and the rolloff of the light on those big, wet lips. The orangutan's whole muzzle area and the meaty part of his mouth were all 3-D. Stirling Duguid, our 3-D animation supervisor, built in all of these really insane little details — the crevices and wrinkles in the skin — and then added really big, sweeping meaty lips and a big tongue. He got a lot of articulation in there. There was a desire to give the orangutan a stoned, Cheech and Chong-style appearance, so Ted Fay, our 2-D supervisor, created that heavy-lidded look by warping his expressive eyes using Avid's Elastic Reality. In the end, it came out looking great."

Canada's Core Digital Pictures created some entirely 3-D rats, which meant tackling that age-old digital problem: CG hair. "Every single hair was a model," Farhat states, adding there was no other way to accomplish the task. "I had to shoot the trained rats at 48 frames per second with tons of light, but even then they moved very quickly and would not stay in a constant space. In order to keep them still, we had to feed them so they were always chewing, which meant we had to stop them from chewing to make them talk. Once we got into patching and fixing, it became apparent that the only way we were going to get through the job was to make three-dimensional upper bodies and track them to the lower bodies of real rats. It was one hell of a job, but we did it, and you can't tell the difference."

Simple as it may seem, Jon Farhat's ultimate goal on *Dr. Dolittle* was quite ambitious. "It had to look as if these animals were impeccably trained, not effected," Farhat says. "We didn't want to turn the film into a cartoon." ■

As we all know, trying to control one's love life can lead to various kinds of insanity. In director Griffin Dunne's black comedy *Practical Magic*, shot by Andrew Dunn, BSC, witchy sisters Gillian and Sally (Nicole Kidman and Sandra Bullock) discover just how crazy love can get when they decide to use their supernatural powers to attract Mr. Right. The gods don't take kindly to this breach of the natural order, however, and murder and mayhem ensue.

In an effects sense, the title *Practical Magic* is deceptive. In fact, very little magic was created practi-

Hot Cauldron

Cinesite grants powers to the modern-day witches of *Practical Magic*.

by Ron Magid



Photos courtesy of Cinesite, Los Angeles.

cally by physical effects supervisor Burt Dalton (although he did engineer a subtle gag wherein a candle lights up as Bullock blows on it). Instead, the production relied primarily upon the digital craft of Cinesite Los Angeles to infuse the tale with the requisite paranormal edge. Leading the way was visual effects supervisor Jay Riddle, who previously had served as computer graphics supervisor on *Star Trek VI* at Industrial Light & Magic, and on

Cliffhanger at Boss Film. He also supervised Digital Domain's work on *Snow Covered*, a Grand Prix winner at the 1993 Cannes Commercial Festival, before going to work for Phil Tippett, for whom he lit and integrated thousands of CG bugs on *Starship Troopers*. Finally, Riddle's quest for the perfect effects home landed him at Cinesite, a facility looking to remake itself.

"We're trying to evolve the company from being strictly a 2-D

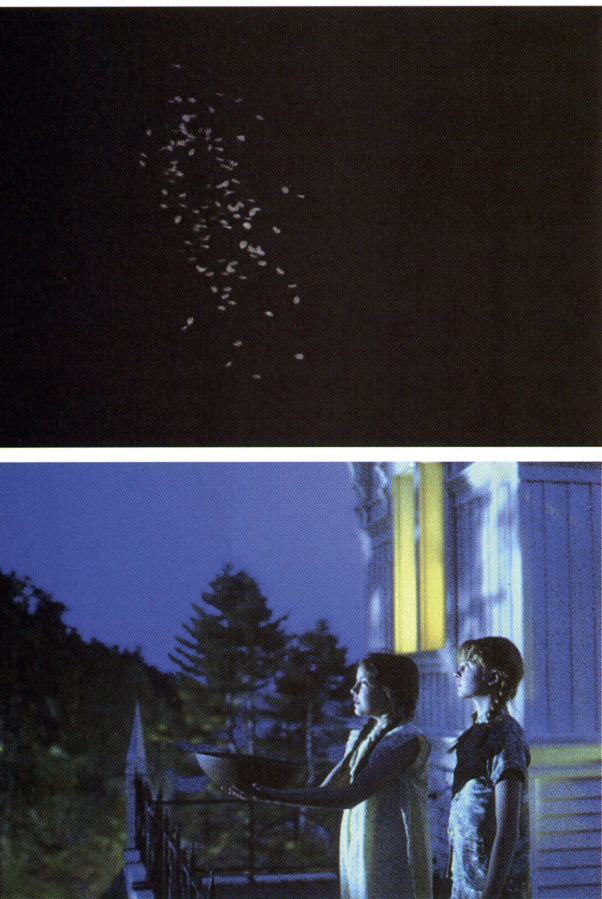
compositing and film-salvage company — removing dirt, rods, wires and whatnot — to a firm that does more 3-D work," Riddle explains, citing the kind of recent contributions Cinesite London has made to large-scale extravaganzas such as *Lost in Space*. "But we don't want to be just a digital facility either; we want to bring in more of the traditional areas and augment what we're doing in digital. While we now have to farm out miniature work, we'd like to have closer ties to that stuff ourselves. We're investing in a new facility with additional space where we can have all that, because our current location is filled with people working on computers."

Ironically, *Practical Magic* does not precisely fit the model of Cinesite's new direction. "*Practical Magic* is a fairly traditional show," Riddle admits. "It has a lot of 2-D work and a lot of greenscreen, but there is some interesting 3-D work going on, which evolved through the process of doing the show itself."

The concept of effects evolving during the course of production is not a new one, but it's becoming more of a challenge in the digital age, as filmmakers come to realize they can fix almost anything in post — for a price. "It's always interesting to have that kind of evolution while

As sister Gillian watches, a youthful Sally makes her wish for the perfect mate — with the help of some computerized flower petals crafted by Cinesite.

Hot Cauldron



Above: The animated petal element and plate. Director Griffin Dunne wanted the film's "magic" to have an organic feel -- compelling Cinesite to utilize an understated approach.

you're doing a show, because it can end up taking you someplace you never thought you could go before," Riddle observes. "*Practical Magic* started out as 40 effects shots, but we increased to about 120 shots. There were some ideas that weren't necessarily scripted that Griffin wanted to see; I don't think he really knew a lot of these things off the bat or when we were shooting the plates. When the director has a moment of inspiration on the set, it's sometimes harder for him to clearly communicate what he wants under the pressures of the first unit, when everybody's standing around waiting to shoot Nicole Kidman or Sandra Bullock. He trusted that we'd be able to give him what he wanted later. And at that point, we're really collaborating."

One thing director Dunne made absolutely clear from the outset was that he wanted to steer

away from any of the clichés audiences associate with witchcraft. Consequently, there are no lightning bolts shooting from fingertips, but rather a sense of "Was it magic, or not?" An excellent case in point is a scene in which Sally (Bullock) summons her lover, detective Gary Hallet (Aidan Quinn) to come back to her, using an ordinary leaf as her magic talisman. When she drops the leaf from the top of a house, "it just sort of drops like nothing's happened," Riddle says. "All of a sudden, a gust of wind seems to catch it and loft it up, back and forth, lilting like a leaf does. It then flies away from her toward a beautiful moon in the sky. To create that effect, we shot Sandra on top of the house on location, dropping a real leaf out of frame. Then we created a 3-D computer-generated leaf that matched the real one and animated it so it took off in an interesting way that looked as if it had been caught by the wind. The idea was to make the audience wonder, 'Well, did she

in particular demanded the utmost effort and some new techniques to make them leap off the screen. The first sequence occurs in the middle of the film. After Sally murders Gillian's abusive lover, Jimmy Angeron (Goron Visnick of *Welcome to Sarajevo*), the witches bring him back to life. However, he's still so nasty that they kill him again, and Jimmy ends up as a wandering, tormented soul who eventually possesses Gillian. As luck would have it, detective Hallet, who is investigating the murder, comes calling when Jimmy has taken over Gillian's body. Hallet's presence causes Jimmy to emerge from Gillian and leads to a confrontation between the detective and the spirit.

The initial step was to make Visnick's body to appear to push out of Kidman's as she lies writhing on a bed. Ultimately, the effect was achieved by layering Visnick's image over Kidman's, but the real trick was making their actions sync up believably. This demanded not only some careful compositing, morphing and transition work from Cinesite, but also some excellent miming skills on Visnick's part. Riddle recalls, "We first shot Nicole writhing around in bed on-set. Goron, who's an incredibly physical actor, was then able to help us in a lot of ways by studying what Nicole had done and doing a really great job of matching his movements to hers as we shot him against greenscreen. This is exactly the kind of shot we always dread, trying to get two actors who aren't going to be shot together to sync up in any conceivable way. There aren't that many actors who could do it as well as Goron managed to, with very little preparation, so it was a dream for us to find someone with that much control of his body who could also give a great performance.

"Even so, it was very difficult," Riddle continues. "Although the basis worked pretty well from the beginning, we still had to do a lot of

"We're trying to evolve the company from being strictly a 2-D compositing and film-salvage company — removing dirt, rods, wires and whatnot — to a firm that does more 3-D work."

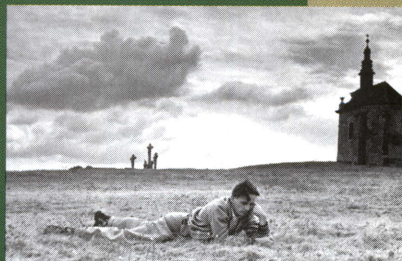
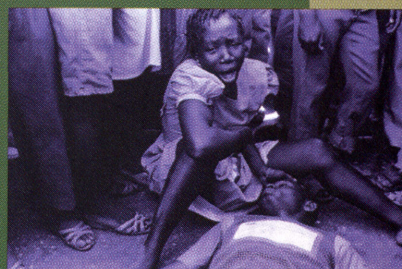
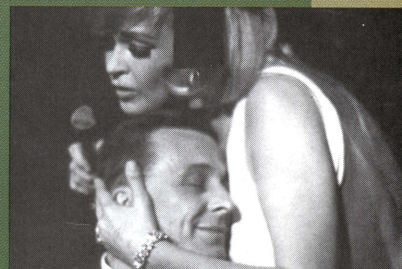
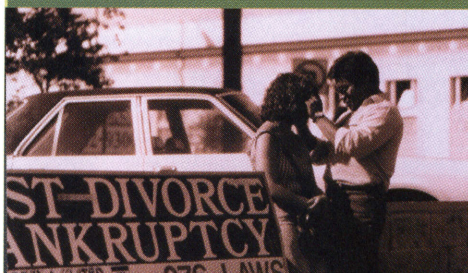
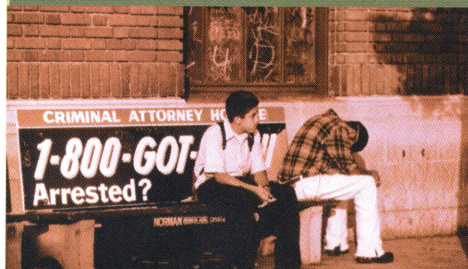
— visual effects supervisor Jay Riddle on the future of Cinesite Los Angeles

make that happen, or did she happen to drop the leaf at the right moment when the wind would catch it? All of the magic in the film borders on that kind of reality."

Although much of Cinesite's work involved wire removal and greenscreen composites, two scenes

December Online Feature:

This month, take a gander at the still photos taken by prominent cinematographers as discussed in the article "Still Lives, Distant Vistas" (see page 90). Our website features an exclusive peak at additional images shot by cameraman Phil Parmet along with those of ASC members Vilmos Zsigmond, Haskell Wexler and Stephen Goldblatt as displayed on the walls of the New Alchemy Gallery.



matching and moving things around to line him up with her movements, to the point where he rips out of her body. We wanted to use action to our advantage, rather than dwelling on each moment, so we tried to choreograph enough abrupt moments into what Nicole was doing, which we used to help bring out parts of Jimmy's body."

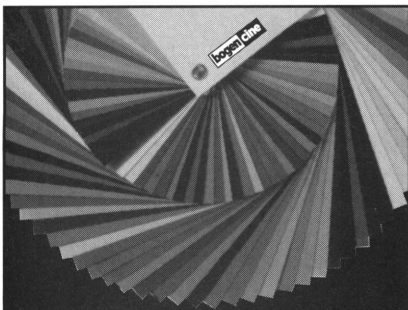
In terms of visualizing this sequence and others, the Avid Film Composer system proved to be a huge help to both Cinesite and the filmmakers. Working under supervising editor Beth Kling, editor Craig McKay used the Avid to temp-composite the greenscreen and live-action elements in order to work out the timings, aided by assistant editors Gary Levy and Michelle Harrison. "For the sequence where Jimmy is possessing Gillian, we often had shots with three elements put together: Jimmy shot against greenscreen, Gillian shot on set, and an empty plate," Harrison says. "The Avid allowed us to do a scratch version of that shot. We could blend the elements together and see what the shot was ultimately going to look like. We picked the greenscreen take we wanted and the take it would be composited over, and mapped that superimposition out in detail very easily on the Avid in order to cut the shot. We then gave that information to the visual effects house, where they composited the elements for real. Being able to do that work on the Avid certainly facilitated the interaction with the effects artists, because we could map it out, run it over to Cinesite and actually show that cut to the effects people."

But timing wasn't everything. Dunne insisted that he didn't want the effect to look like the *Alien* chest-burster. "The film is rated PG-13, so we couldn't make it too grotesque, with graphic gore," Riddle says. "Nicole is also wearing clothes in the scene, which was another challenge. How do you get rid of her clothes,

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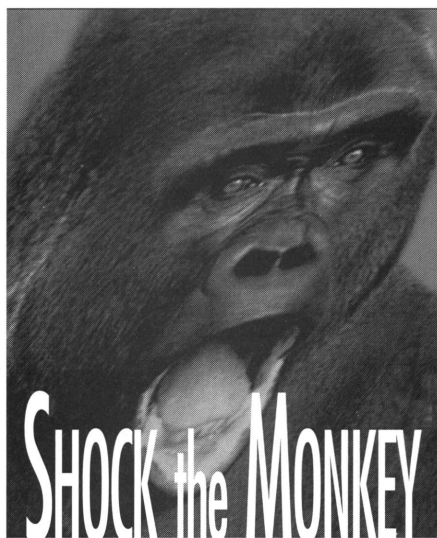
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especially at the point where her body starts to sort of disintegrate and he pushes his way out? We ended up using a combination of 2-D tricks, very heavily layered with all kinds of blurring and textures to mess up Goron's image and make him look as if he was inside a translucent jelly that was coming out of her. It's a fancy morph-type transition. I hate to characterize it as that, because it almost belittles it. The term 'morph' is just too simplistic these days. We did a lot of handwork to create this very layered, textured effect with a magical quality."

Hallet's presence in the attic is a direct challenge to the newly freed Jimmy, who shimmers with a diffused quality as he circles the detective. The interaction needed to make the scene work drove Riddle to shoot the two actors against greenscreen in the confined attic set using motion control. "Originally, we weren't going to shoot any motion control," Riddle admits. "But it was important in a performance sense to have the actors connect with each other, and we realized that if we just did all the shots as lock-offs or with added post moves, it really wasn't going to play. We pulled in motion control strictly for a couple days and kept it simple — pan-and-tilt stuff only. Once we knew exactly what the pans were, we just tacked the greenscreen to the walls of the set and lit it to get separation between the actors and the background. Then we went back to our original set lighting and shot the empty set via motion control to match it, so we could put them back into the plates later. This allowed Griffin to use the same space, get the performances he wanted and get the essential backgrounds that were needed."

This strategy was particularly helpful with regard to a remarkable moment when Jimmy pushes Hallet and his hand literally penetrates the detective's chest. "In the original greenscreen plate, Goron moved his

hand forward, grabbed Aidan's chest with his open palm and pushed him back a bit," Riddle remembers. "Because the two actors were actually shot together, you feel the physical impact and you see it in Aidan's clothes, which shake a little bit. We just painted away all the contact of Goron's hand with Aidan's chest, replaced the clothes, put a little wrinkle around there and created a matte, so it would look as if the hand went right in."

An instant later, Jimmy yanks out his hand and stares at the imprint of Hallet's five-pointed badge burned into his palm. Realizing the power of his badge/talisman, the detective points it at Jimmy, who rapidly disintegrates. Jimmy's spectacular destruction is the result of a new proprietary technique that Cinesite has dubbed Optical Flow. This remarkable program correlates the positions of thousands of individual pixels from one frame to the next, then applies that data to an unrelated series of frames to create perfectly synched effects on the most minute level, like using an explosion to drive the destruction of Jimmy's body. "If Goron turned his head," Riddle posits, "the program showed us which direction each pixel was moving in, and at what velocity. Once we have that type of information, we can simply apply the data to a totally different sequence of images and have the movement of the original set of images drive the second set of images."

In this case, Riddle's crew shot a large-scale pyro-effect, analyzed its movement using Optical Flow, then applied that explosive motion data to Visnick's image. The result is a disintegration that explodes the actor's body into minute fragments with far greater naturalism than straight particle systems, which tend to look too mathematically precise. The process was also far less labor-intensive than trying to animate an organic explosion. Riddle explains,

"This is more of a 2-D technique, but unless you're willing to spend lots of time animating it and lots of processor time rendering it, there's no 3-D approach that can create the real, organic quality that something as simple as a little puff of smoke can give you. For the sequence in question, we analyzed the movement of the explosion to see how it changed from one frame to the next, and then applied that to Goron's image and exploded him apart in a way that looks very natural and intricate. It's quite CPU-intensive, but it depends on how fine a detail you want. The rougher you can live with a particular shot, the faster you can get it done, but it typically takes five to 10 minutes per frame. The method certainly has its limitations, but it gave us a lot more for a lot less effort than in the past."

Other changes were made to Jimmy's appearance to shift the film's dark tone back toward the comedic. "Griffin wanted to turn this moment, which could have been very tense, on its ear and make it comical," Riddle relates. "Once Jimmy was exorcised, we originally thought that we were just going to make a liquidy thing or a big mass of hornets flying around in roughly Jimmy's shape. We figured we didn't need to shoot anything with Goron; we'd just be able to model him with stills, because this mass of swirling stuff didn't really need to have his image on it. Then Griffin decided he wanted to see Goron in the scene, which became an interesting 3-D challenge. That evolved over a short period of time, from a big gelatinous mass that was flung up on the ceiling to a desaturated version of Goron hovering on the ceiling in a cloud of swirling dust made of what we call 'bits.' We shot Goron hanging on wires against a greenscreen, with no proximity to any kind of ceiling. The set itself had no ceiling, so we created that element and added a drop shadow so Goron looked as if he was



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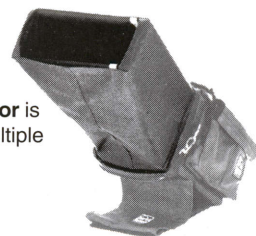
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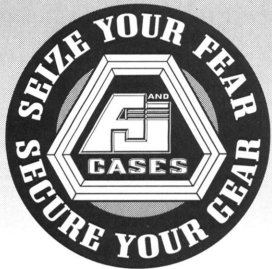
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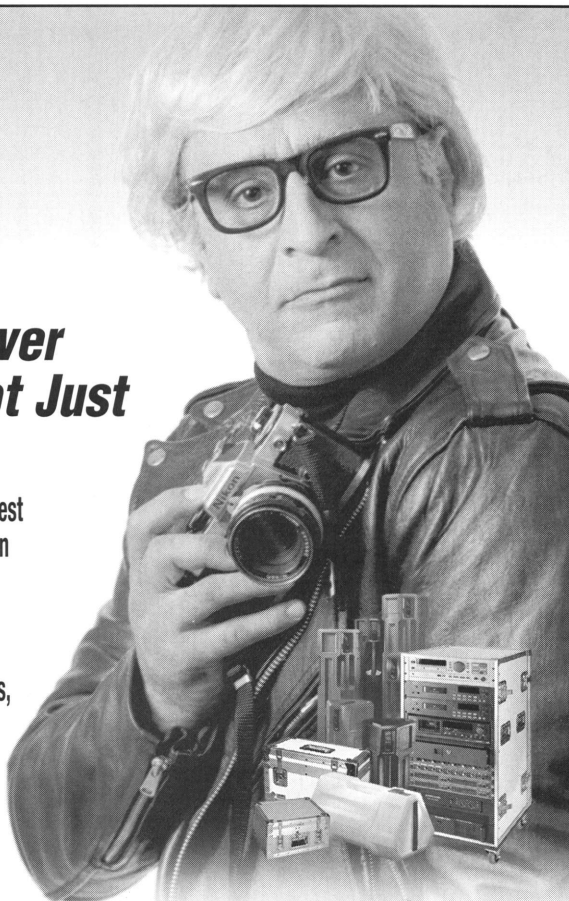


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Hot Cauldron

hanging a little bit below it."

For Jimmy's ultimate demise, Dunne once again changed the original scenario in favor of humor. Where the original ending called for the evil spirit to make a final death-defying leap into his grave and disintegrate in mid-air, the revised climax called for a more active approach, wherein the heroines pour a big cauldron of witch's brew over Jimmy's midsection — with predictable results. "He's like the Wicked Witch in *The Wizard of Oz*," Riddle grins. "Jimmy melts down into the ground with this terrible expression on his face, and all that's left are his boots! We did that using a combination of the 2-D Optical Flow to analyze his movement over several frames, plus 3-D tracking to match-move our 3-D Goron model to his movements, so we could disturb his image as it was going through the ground plane. He's melting from the middle of his body, and his head and legs sink into the ground at the same time. We therefore added some steam and stuff where his body intersects the ground, then created an effect to make him look as if he was just dissolving away."

As fun as the onscreen antics appear, putting the digital-effects magic in *Practical Magic* was not always so carefree and fun. "You know, I could easily say that it was a nightmare show to work on, but I try to put a good spin on it," Riddle sighs. "I think we managed to create an environment that allowed the director to make a lot of late creative decisions. We were able to roll with the punches so Griffin could change the ending of the movie, and we still produced something great by the original deadline. It's a powerful thing to be able to say, 'We can still work this late in the game,' but I'm not necessarily excited about having people know about it!" ■

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Creative in-camera effects breathe life into indie thriller's man-eating snake.

by Philip D. Schwartz

Photography by Alan Goodnoff and Walter Stewart

A Striking King Cobra

In the world of independent filmmaking, the unlimited creative options offered by computer-generated imagery are often not viable, due to tight budgetary and/or scheduling parameters.

There were many issues that we faced in the preparation and photography of the Trimark feature *King Cobra*, the "star" of which is a

35'-long, gene-spliced hybrid African King Cobra and Eastern Diamondback Rattlesnake. The writer/producer/director team of brothers David and Scott Hillenbrand and I acknowledged that our principal challenge would be the creation of compelling, frightening, organically realistic images "in-camera."

First, and most critical, was the photography of our creature's POV as it moved considerable distances over forest terrain and struck at its hapless victims. Naturally, this POV had to have a slowly rising and swaying feel. At the moment of attack, the strike had to look as if the snake was moving at great velocity (up to an apparent



speed of 10' per second) toward a victim. Special rigs were designed to move the camera in this manner; various camera speeds in both forward and reverse were tested, and the rigs had to work both horizontally and vertically.

We also had many discussions about the "focal length" of the snake's POV, and whether there was going to be a distinctive color or hue to the image. A particular color or look was ultimately ruled out, however, because we felt that the viewer's attention would no longer be on the target of the POV but would be distracted by the visual effect itself.

What would the victims see as they were being attacked? How would altering the focal length during the shot, as well as the camera speed, affect the victim's POV? How could we force the audience to feel the victim's terror at the moment of attack? Also, how could we make a several-hundred-pound animatronic creature strike and attach itself to a victim — and have it look genuine?

Other creative issues that required extensive testing involved the overall look of the film, especially the woods where most of the story unfolds, as well as the lighting that would be most effective on the animatronic snake.

The creature (dubbed "Seth") was designed and built by Steven,

Charles and Ed Chiodo, Tony Doublin and Dwight Roberts of Chiodo Brothers, Inc. (*Darkman*, *Gremlins*, *RoboCop*). It comprised a fully animatronic head-and-neck section standing almost 6' tall, a flexible non-animatronic midsection approximately 20' long, a 6' tail section and a six-foot, fully articulated tail/rattle section capable of variable rattle and movement speeds. There was also a "stunt double" head/neck section, used for long shots and very physical scenes that could have damaged the "hero" head. The animatronic head/neck section was mounted to a special jib arm, often on its own dolly and track.

We shot several days of tests with the creature to determine the optimum lighting, lenses and camera speeds. We decided that a harder, half-to-three-quarter back-light key would render the creature's skin texture in the most lifelike manner, especially if it was given a light water misting to increase its sheen.

Several wide lenses were tested for the snake's POV; ultimately, we chose the Panavision Ultra-Speed T1.9 14mm as the designated "Seth lens." This 14mm presented its own challenges, not the least of which was hiding 50 or 60 feet of track laid out in front of the camera as we dollied along at ground level on an Aerocrane Jib Arm.

By using various slow camera

speeds, and often ramping speeds during the shot, we effectively managed to increase the fright factor. We sometimes shot our snake striking at the camera (a victim's POV) at a fixed 8 fps; at other times, we ramped from 24 to 6 or 8 fps to give the illusion of a tremendous acceleration during the snake's strike. We also liked the effect created by zooming in from 40-50mm or 40-60mm on the snake at the end of its strike toward the camera. This added an extra measure of visual (and visceral) impact to the attack.

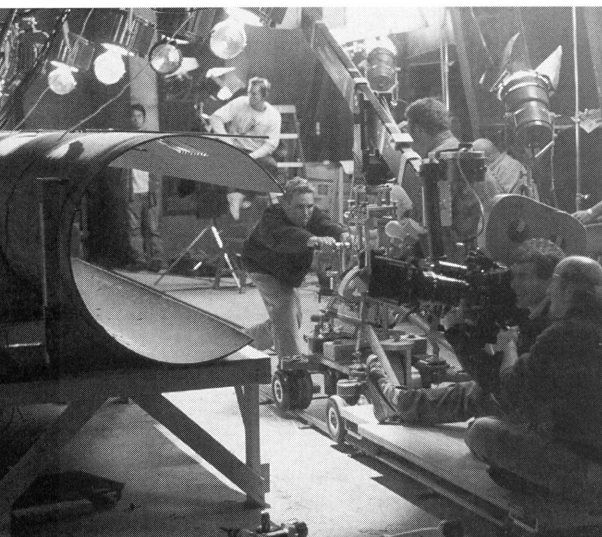
We also tested running the camera in reverse, both undercranked and with ramping of speeds. The Panastar II was able to do speed changes in reverse, and the results were dramatic. To create the effect of the snake striking a victim and holding on with its fangs, we started with the animatronic head attached to the actor, then opened its jaws while backing it away. We combined this motion with a speed change from 8 to 24 fps while running the camera in reverse, thus making the snake appear to lunge and sink its fangs violently into the victim.

When ramping speeds, we naturally had to compensate for an exposure change. I was initially hesitant to do this on the lens iris, due to the probability of seeing a sudden change in depth of field. We therefore tested the effect of varying the shutter angle for exposure compensation. When we closed down the shutter, the creature's movements became very mechanical and choppy. (This was no doubt due to the loss of the motion blur normally created by a 200-degree shutter opening.) Exposure was adjusted at the iris, and, frankly, no one could detect the depth-of-field change.

Most of the film's action occurs in dense, canopied woods. We wanted at all costs to avoid a pretty, dappled-light, warm, Southern California feeling, which would have worked in opposition to the horrific

Opposite: A fearsome snake strike (actual film frame), shot from the POV of a helpless human victim, was achieved with the help of an animatronic creature mounted on a dolly/jib rig (this page). Tony Doublin of Chiodo Brothers, Inc. (in red shirt) helped to design and operate the device.

A Striking King Cobra



Above: A 20' length of cutaway tubing was used to shoot the film's climactic scenes, in which one of the film's heroes inadvertently serves as bait after crawling into a snake trap. Operable vents along the top of the tube allowed the crew to create shafts of "sunlight" with a bank of overhead 1K babies. Right: Scott Hillenbrand, David Hillenbrand, and Philip D. Schwartz show off another of their creative solutions: a camera mounted on a speedrail rig to simulate the snake's POV at ground level.



elements of the story. The audience should get as cold, clammy and uncomfortable a feeling as possible from the images. In classic horror-film tradition, they should not know exactly what lurks in the shadows.

I decided to use Kodak EXR 5298 (rated at ASA 400) as the only stock for the project. It handles contrast well and digs into the shadows, and the slight grain added a bit of an edge. The speed of 5298 was also an advantage, since almost 90 percent of our exteriors were in the woods, with very limited sunlight during shortened December daylight hours.

We shot extensive filter and Panaflasher tests to help achieve our signature look. We wanted to reduce the contrast and clarity of the image just a bit, and ultimately chose a Tiffen 1/2 Black ProMist, in combination with an 81EF in lieu of an 85, for

all of those scenes. The use of the Panaflasher, even with a minimum percentage of flash and an internal 80A cooling filter, was ruled out because the resulting image lost the feeling of edginess and mystery. Mike Mertens, our timer at CFI, further refined the cold, inhospitable look in the final print.

Key grip Alan Goodnoff (who designed and built the camera, lighting and special-effects rigs for the *Nightmare on Elm Street* features) came up with a simple but very effective method for capturing the creature's POV. He built a series of "speedrail" rigs, some up to 18' in

length, for launching our Panaflex at the victims and creating this "striking" POV. These rigs, with the Panaflex attached, were thrust toward a victim (or pulled away, to create a "recoil") by the grips.

The camera was operated remotely, sometimes with a speed or focal-length change, while the video tap and onboard monitor allowed me to compose the shot. First assistant Bob Heine had to run alongside the camera to pull focus and/or operate the speed/aperture computer.

One of my favorite scenes involves the snake's sudden appearance in the nightmare of our sleeping heroine while a thunderstorm rages outside. The animatronic creature required a minimum vertical clearance of 6' in order to operate properly, so we built our bedroom set on an elevated platform, allowing the puppeteers room to work from under the floor. A trapdoor was strategically located in the floor next to the bed, while the camera on its jib arm and dolly could move along a length of elevated track.

The shot started with the camera at floor level next to the corner of the bed, then craned

upward to a height of approximately 8' over the bed, actually viewing the closed trapdoor, which was covered by an area rug. It then glided down to a position in profile to the sleeping actress, as lightning (courtesy of a Lightning Strikes unit) and pouring-rain effects washed over the walls and bed. On cue, the trapdoor was opened (this was blocked from the lens by the bed) and the creature rose menacingly up on its jib arm to confront the screaming heroine. Hopefully, the audience will share her panic.

We created Seth's POV with the designated 14mm lens on our "underslung" Panaflex, mounted via a Weaver/Steadman head to the Aerocrane jib arm. The obvious problem was hiding our own track as we cruised along at ground level, pointed forward in the direction of travel, with the jib perpendicular to the length of track.

The solution was actually quite simple. We created a gently sloping embankment of logs, branches and leaves alongside the entire length of track, with just enough clearance for the dolly wheels. This embankment blended perfectly with the surrounding terrain. We also covered the track with a long series of "dirt rugs," as they came to be called, which effectively camouflaged the track as the camera rose above the level of our embankment. As the dolly tracked forward, our dirt rugs were simply rolled up or pulled away, just out of frame of the rising Panaflex.

Near the climax of the film, the protagonists attempt to trap Seth inside a specially designed tube, approximately 3' in diameter and 35' long. The snake would ostensibly be killed by poisonous gas in this tube after it had been sealed inside. However, after crawling into the tube, one of the film's heroes inadvertently becomes the human bait who lures the snake into the trap. We designed several shots to race along

Elizabeth



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A Striking King Cobra



with the creature as it pursues our hero down the length of this tube.

All of these "tube interiors" were shot on stage. (The exteriors were done in the woods.) Production designer Jack Cloud removed a

20'-long section approximately 120 degrees in circumference, which enabled us to film both top and profile views of the action inside.

The animatronic snake (on its jib and dolly) was oriented horizon-

tally inside the cutaway tube, which was positioned on a raised platform. The Panaflex was underslung on the Aerocrane jib and mounted on the dolly and track running parallel to the raised tube. I could now do a

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series of running shots "inside" the tube, focusing on both the charging snake and pursued hero.

To simulate our day/exterior woods, a bank of downward-focused 1K babies, with Fresnels removed, sent shafts of "sunlight" through the series of operable vents cut along the top of the tube. As the actor and snake raced under these shafts of hard light, the rapidly moving patterns on their bodies increased the apparent velocity of the action.

The creatively challenging sequences visualized by the Hillenbrands tested my abilities to realize their ambitious storyboards onscreen. With the help of lighting suggestions from gaffer Walter Stewart, ingenious rigs from key grip Alan Goodnoff, technical support from first assistant Bob Heine, and the Chiodo Brothers' wizardry, the production values on this feature were heightened by several orders of magnitude.



Opposite: The production prepares its "snake-thrust" rig to capture the cobra's viewpoint as it "attacks" actor Pat Morita. The finished frame appears at left.

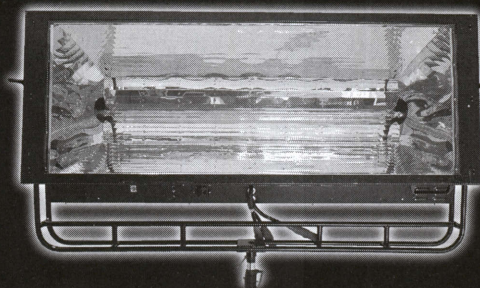
Time-tested methods of camera manipulation, lighting and filter tests, and thoughtful analysis of the issues presented by story and budget all combined in an entirely satisfying experience. ■

Philip D. Schwartz is a Los Angeles-based cameraman whose credits also include the Hillenbrands' first feature, Hostile Takeover (a.k.a. Sharpen the Saw; see AC July '96).

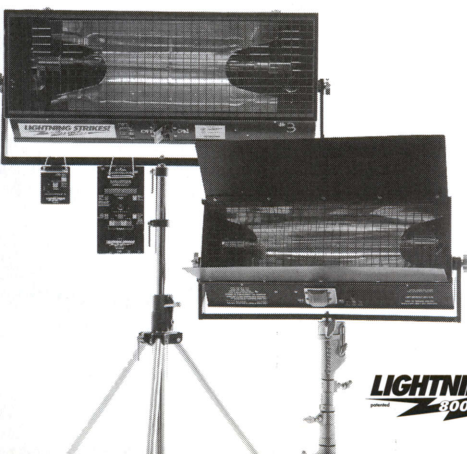
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Still Lives, Distant Vistas



A Los Angeles-based gallery unveils an exhibition series featuring the still photography of leading cinematographers.

by Andrew O. Thompson

Though a public exhibition of still photographs shot by cinematographers is an inspired notion, the New Alchemy Gallery's continuing display of such work, titled "Still Moving," actually arose by chance. It began at an elementary-school auction, where writer/producer Floyd Byers purchased a photo taken during the 1992 Los Angeles riots. The picture shows two African-American men clad in "X" T-shirts strutting down Pico Boulevard, the buildings behind them ablaze and blackening the heavens with billowing plumes of smoke. Byers found that the arresting shot had been taken by a cinematographer, Phil Parmet, whose feature-film credits include *In the Soup*, *Nina Takes a Lover* and the upcoming *Black and White*. Byers later perused the cameraman's vast photo portfolio and discussed a gallery showing, but a suitable venue could not be acquired.

Some months later, however, Byers encountered the man who had framed Parmet's shot for him, Thomas Parker, and learned that he owned the New Alchemy Gallery on

Melrose Avenue in Los Angeles. Byers subsequently contacted his acquaintance, screen writer/architectural designer Laurie Franks, who had discovered that Vilmos Zsigmond, ASC, had been shooting stills as a hobby for more than 40 years. These encounters led to the pairing of Parmet and Zsigmond's work for the first entry in the "Still Moving"

tion of stark, stylized landscape scenes shot by director of photography Karl Hermann (TV's *Dawson's Creek*).

In discussing his photographs of the L. A. riots, Parmet recalls that while watching the conflagration on television, he and a friend decided to check out the action for themselves. Parmet loaded some Tri-X film into

those guys from half a block away, but I thought, 'They're too far off. I've got to wait until they get right in front of me.' I focused the camera at a hyper-focal distance, put it down at my side, and when they got there, I took one shot. The guy looked at me and asked, 'What are you doing?' I said, 'I took a picture of the fire.' He replied, 'Oh,' and kept walking. But it looks as if he was going to kill me, doesn't it?"

Parmet's 18-year tenure as a documentary cameraman imbued him with a love of traveling to far-flung locales. His black-and-white stills taken in Iran, Kenya, Ethiopia and Japan demonstrate his penchant for globe-trotting and belie his experience in verité filmmaking. "There's something very compelling about the graphic quality of black-and-white photography," he states. "Color is very difficult to control and can be very distracting. Just look at great works of art that use color selectively. Accenting a huge canvas with a small piece of a primary color — like a red or blue — against a field of pastels can exert an extraordinarily powerful pull on the eye. In cinema, you can control the palette with art direction, but there's no control over that in the real world for the documentarian and the still photographer. I *have* seen color photography that I love, but the idea of an image made up of silver on paper speaks more directly to me."

In 1986, Parmet was inspired to visit Haiti after reading Graham Greene's historical novel *The Comedians*. Ironically, he landed in Port-au-Prince on the very day that dictator "Baby Doc" Duvalier was deposed. Over the course of three years, he spent a total of six months in the island nation, amid an unstable atmosphere of political turmoil and terror. Around this time, the Macout (the secret police supporting the Duvalier regime) were conducting random drive-by shootings intended to frighten the lower classes

Opposite page: "At the Nemzeti," a still which Vilmos Zsigmond, ASC took in the early Fifties while he was attending film school in the city of Budapest. The Hungarian cameraman employed 16 ASA Agfachrome stock and utilized a timed exposure that produced a slight haze around the neon signage. This page: "X-Men," an image Phil Parmet caught in late April of 1992 when riots erupted in Los Angeles.



series. "We are probably the first people to solicit these photographs," Byers comments, "and a lot of cinematographers are taking stills all the time — it's like writers' notebooks. We hit a really good moment, and now people are coming to us. There's an ever more obvious conceit within a large part of the collaborative community about who 'the eye' is, in terms of visualization — even with Hollywood movies. And I think that there are a lot of people now looking to celebrate that vision."

The series' sophomore show coupled Haskell Wexler, ASC with documentarian Christine Burrill, who pieces together snapshots to form oversized collages in a technique similar to that of painter David Hockney. Last month's exhibition featured the imagery of Stephen Goldblatt, ASC and a selec-

"The guy looked at me and asked, 'What are you doing?' I said, 'I took a picture of the fire.' He replied, 'Oh,' and kept walking. But it looks as if he was going to kill me, doesn't it?"

— Phil Parmet

his Leica camera and hit the streets. An accomplished documentarian who has worked on numerous indie projects and both *60 Minutes* and *20/20*, he favors in-your-face photography and rarely ever shoots with a telephoto lens — his focal lengths generally include a 21mm, 35mm and 50mm. Of the aforementioned "X-Men" shot, Parmet notes, "I saw

Still Lives, Distant Vistas



An eerily prescient shot of the Beatles, captured by Stephen Goldblatt, ASC in July of 1968, foreshadows John Lennon's tragic fate. At the time, Goldblatt was working as photojournalist in London.

from voting in a populist election. Just such a murderous act led to "Killed by Macout," a photo in which a grief-stricken woman crouches over the body of a slain man. Parmet recalls, "This guy came running up to me, grabbed my arm and said, 'Come with me!' He dragged me across the street to where these people were standing around, and I'm thinking, 'God, I'm the only white person here and everybody is pissed off.' A woman looked up at me and said, 'Valiant photographer, take a picture of my husband and show the world what the Macout did to him.' I have tears in my eyes when I think about that time, because it was one of the most powerful moments of my life. I'm sure that the irrefutable power of that particular photograph resulted because the woman, in her despair, and I connected on a most basic human level. She had asked me to be a witness against oppression and violence, as opposed to so much of what contemporary journalism has become — an exploitation of violence.

I never would have taken that picture without her asking me to do it. A paparazzi could have taken a photo at the very same moment, but he wouldn't have recorded the same picture as the one I made."

Though Parmet's work sparked the idea for the "Still Moving" series, the first cinematographer to be formally contacted for the exhibition was Vilmos Zsigmond (*Deliverance*, *The Deer Hunter* and *Dancing About Architecture*, see p. 28), who, as a child, took family pictures in his native Hungary with his father's Kodak camera. Due to his bourgeois background as the son of a soccer coach and pub owner, the Communist regime refused Zsigmond university entrance to study engineering. He instead served as an assistant to a photographer for a year before taking a job in a factory. The plant's party leader suggested that Zsigmond would have to prove his

"The Beatles put together a photo session to take place over two days in London... It was just about the last official shoot that the band ever did."

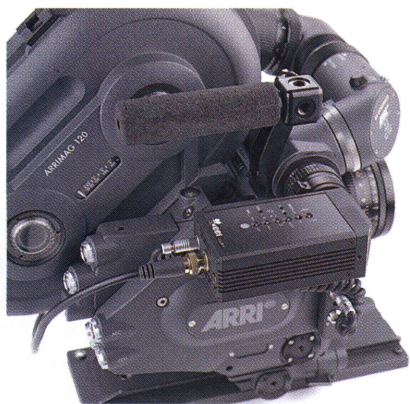
— Stephen Goldblatt, ASC

commitment to Communism in order to attain university acceptance. "I came up with the idea of starting a photo club in the factory," Zsigmond recalls. "I bought some cameras and developing equipment and taught photography to the factory workers and their family members. Within a year, I became a hero. Everyone thought that I was a 'good guy.' Eventually, the Communist party leader came to me a couple years later and said, 'We've got some forms here; if you fill them out, maybe you will be accepted into the Motion Picture

Film Academy in Budapest.' That's how photography led me to the field of filmmaking."

Zsigmond's tenure in film school, from 1951-55, spawned some of his earliest memorable shots — monochrome images of landscapes taken in his native land. "[At film school,] we studied everything connected to filmmaking — art, painting, sculpture and still photography," Zsigmond says. "Of course, you cannot become a cinematographer unless you know how to shoot stills, so we had to shoot lots of stills and show some progress. This was easy for me, because it was already my hobby."

A popular favorite in the cinematographer's gallery display was a picture titled "Vilmos' World," an Andrew Wyeth-style composition featuring a young, wistful-looking Zsigmond reclining lazily in a grassy plain with a small chapel in the background. This photo was actually taken by his then-girlfriend, Elizabeth, but composed by Zsigmond himself. She is pictured in a backlit, side-profile portrait that Zsigmond took as she gazed down from the top of a tower. Also part of this series is "At the Nemzeti," a nocturnal city scene that was one of Zsigmond's first forays into color photography. He explains, "The Nemzeti is a famous crossroads in the center of Budapest — the equivalent of Hollywood and Vine in Los Angeles. I was walking around at night and saw this young man leaning against an advertising sign. No one else was around. At that time of night, there was no traffic in Budapest. It almost looked like a deserted city. In those days, we shot mostly in black-and-white, because color film had just come out and we didn't have much access to it. But Agfa had this film called Agfachrome — a very slow stock, about 16 ASA or even less. To get that shot, I had to put the camera on a tripod to get a timed exposure lasting several seconds."



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Still Lives, Distant Vistas

One in a collection of shots Haskell Wexler, ASC took in downtown L.A. neighborhoods. The images of these potential bus passengers were photographed on Ilford XB2 black-and-white stock and printed with a sepia tone.



Nowadays, Zsigmond takes most of his stills during location scouts and vacation trips with a Nikon outfitted with zoom lenses. He admits, however, that he would have used sharper lenses if he had known that his shots would be blown up for gallery display. Though Zsigmond admires the work of the renowned Robert Capa, among numerous other photographers — including André Kertész, Brassai, Kudelka, Paul Strand and W. Eugene Smith — he does not take a documentary approach to his still shooting. “When one becomes a photographer, instinct is most important,” he expounds. “You’re not really searching for an interesting shot — it usually happens right in front of you. If you have the time, you will compose your pictures. I’m not a news person. I like to look at a scene, compose the picture and take a couple of variations in composition.”

According to Haskell Wexler (*Who’s Afraid of Virginia Woolf*, *Medium Cool*, the upcoming *Limbo*), still photography allows a cameraman a more personal means of artistic expression. He explains, “As cinematographers, particularly on features, we’re part of somebody else’s dream. Our still photography — although it’s random and pleasurable — more closely represents

“As cinematographers, particularly on features, we’re part of somebody else’s dream. Our still photography — although it’s random and pleasurable — more closely represents what attracts our eye.”

— Haskell Wexler, ASC

what attracts our eye.”

Early in his career, Wexler served as an on-set still photographer for films such as *Tomahawk* (1951), during an era when a camera was a bulky, boxy apparatus. The veteran cameraman now employs either a 35mm Contax T2 or Widelux panoramic camera to snap photos of locales to be used in his films, and the humanist vision of Wexler’s work is quite evident. “Democracy” documents Chilean Indians — known as *Mapuche* — being granted land ownership by Salvador Allende’s government, while “Rocky Flats” shows a gathering of Native Americans protesting nuclear testing on their lands.

Wexler’s retrospective also includes a series of sepia-tinted photos made during production of

Bus III [see AC Jan. ’97], the final film in Wexler’s documentary trilogy about public transportation. This installment chronicles the Labor/Community Strategy Center and the Bus Riders Union’s efforts to get the L. A. Metropolitan Transportation Authority to alter its design plans for a metropolitan subway system. The thematic thread through each of these photos is an individual awaiting a bus while sitting on a roadside bench emblazoned with advertising. “In going by bus stops, I noticed the tableaux of people standing and sitting while waiting for buses,” Wexler recalls. “To me, there is an exotic, graphic nature [to these shots], because these people are like foreigners in their own city. People in L.A. who don’t get around [the city] in cars have a different rhythm to their lives — one controlled by a lousy public-transportation system.

“I had a friend drive me around while I shot the people at the bus stops through our vehicle’s right-side back window, which I tinted so people wouldn’t see me taking their pictures.

“The stills were shot on Ilford XB2, processed in one-hour [developing] places as color film, and printed with a sepia tint. [The sepia] softened them a bit and gave them a generic quality rather than the hard, documentary quality of ‘Look at these poor people sitting there waiting for the bus.’ It emphasized my interest in the subject’s graphic, artistic nature, rather than any desire to make a social-documentary statement.”

Director of photography Stephen Goldblatt, ASC (*The Prince of Tides*, *The Pelican Brief*, *Batman Forever*), spent his early years as a professional photographer in London. His first published piece was a three-page photo spread of Winston Churchill’s funeral for *Paris Match*. Operating out of a shared studio in the Pimlico district, Goldblatt did photojournalism for the



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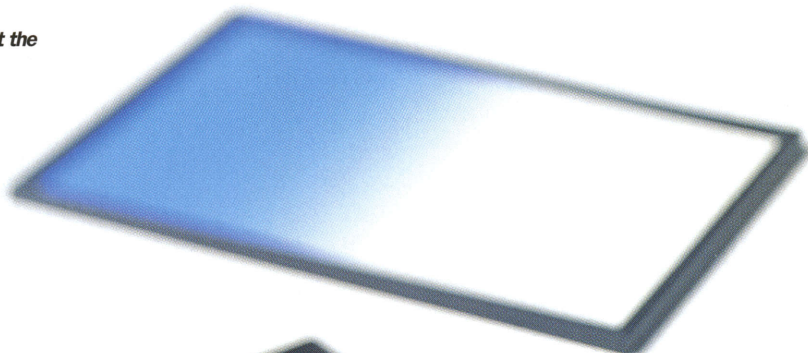
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Still Lives, Distant Vistas

fashion and music industries. During this four-year stint, he shot such wildly popular acts as The Who, Jimi Hendrix and Led Zeppelin, and even managed to accompany Jayne Mansfield on a cabaret tour of northern England three months prior to her tragic death.

Goldblatt also scored a particularly choice assignment because his then-agent worked for Apple Records, the label owned by the Beatles. "In July of 1968, the band put together a photo session to take place over two days in London," he reminisces. "They wanted to use a known photographer — Donald McCullin, the famous war photographer — and an unknown; I was the unknown. I was quite lucky to get the job. I got some good shots, and a number of the pictures were published in *Life* magazine — in double-paged spreads — and used by Apple for its internal publicity and fan magazine. I worked for Apple on and off for about three months until it collapsed, but I managed to regain possession of the negatives [of my black-and-white photos, which were shot on Tri-X stock]. That photo session was just about the last official shoot that the band ever did."

Goldblatt maintains that the sessions were not planned in any way, but proceeded in accordance with the Fab Four's spontaneous whims. "They were very freewheeling. Don McCullin and I just shot whatever they were doing," states Goldblatt. "They performed 'Hey Jude' and jumped in cars, and then they'd jump out. They were very campy and fun. It was free-form, although they did know what they wanted in the pictures."

For a time, Goldblatt worked as photo editor for the pop-culture magazine *London Look*. Later, he was offered the post of junior picture editor at the *Daily Express*, then England's biggest paper. But photo-journalism was too solitary a profession for his tastes, and Goldblatt

instead applied to the film school at London's Royal College of Art, where he earned admission on the basis of his strong portfolio.

Interestingly, Goldblatt now rarely takes photos while making movies. "I can't really concentrate on still photography while I'm working," he attests. "I did take a few photographs on *Batman Forever* because the sets were so spectacular, but it's generally not my habit." His only recent professional assignment was a contribution to the 1992 Tinseltown photojournal *A Day in the Life of Hollywood*.

Goldblatt recently traveled to his native South Africa, where he surveyed some of Capetown's black townships with his Contax and Mamiya cameras. He was dismayed but not surprised by the dire social conditions lingering in the post-apartheid era, particularly given the nation's picturesque beauty. Goldblatt details, "We went to very down-and-out black townships, where refugees [from the homelands that existed during apartheid] lived, and it was very rough — 25 percent HIV infection, tuberculosis, no sanitation, no water, no nothing. There is complete freedom of speech, but there are many problems in terms of the area's racial makeup and the economic base, because of the severe tension between the blacks and the Capetown coloreds [descendants of Indonesian workers who, during apartheid, were accorded higher social status than blacks]."

"I was in two townships for four to five hours, and I saw five funerals. The gravedigger digs 15 graves every weekend for deaths due to HIV, gang wars over drugs, disease and old age. And this situation exists cheek-by-jowl with wealthy Capetown, which is basically white. I did get some ideas for photo stories, but they would take months to work out, and that's not something that you can just walk into, because you could get yourself killed." ➤

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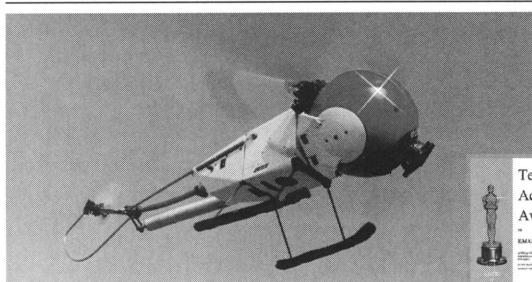
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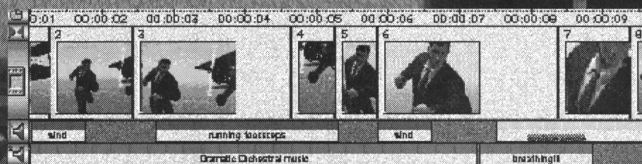
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Still Lives, Distant Vistas

Seeking a sense of realism, Goldbatt utilized black-and-white stock for his Capetown work. "Color is always deceiving," he maintains. "It has a natural tendency to make things look prettier, and this wasn't pretty by any definition of the word. The kids were wearing bright clothes, but when you see kids in bright clothes, it's difficult to imagine that at least one in four will die from AIDS within 10 years. Black-and-white takes any [upbeat] emotion out of the equation."

With "Still Moving" attracting attention from cinematographers, cinema lovers and art aficionados, Byers and Franks have opened themselves up to a wealth of possibilities. Currently, the duo are in negotiations for shows which will showcase the images of such cinematographers as Peter Suschitzky and his father, Wolfgang Suschitzky, as well as ASC members Roger Deakins and Vittorio Storaro. (The latter's exhibit is scheduled to run in conjunction with a Los Angeles County Museum of Art retrospective of the Italian cameraman's feature-film work.) But future exhibits will not focus solely on the photography of living cameramen. The duo also hopes to present the stills of Nestor Almendros, ASC, and James Wong Howe, ASC, as well as shots of director Krzysztof Kieslowski taken by second-unit cameraman Piotr Jaxa during the making of the *Three Colors* triptych.

In assembling "Still Moving," its curators have developed a heightened appreciation for the practitioners of motion picture photography. Observes Franks, "What's surprised me the most is how different the cinematographers' personal work is from what you might imagine, having followed their careers on the screen. It's equally as wonderful, but it often has nothing to do with the way you think that they would take a photograph. That element of surprise is really exciting." ■

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Behind the Curtain



A cadre of creative minds infused MGM's classic fantasy *The Wizard of Oz* with a timeless supply of movie magic.

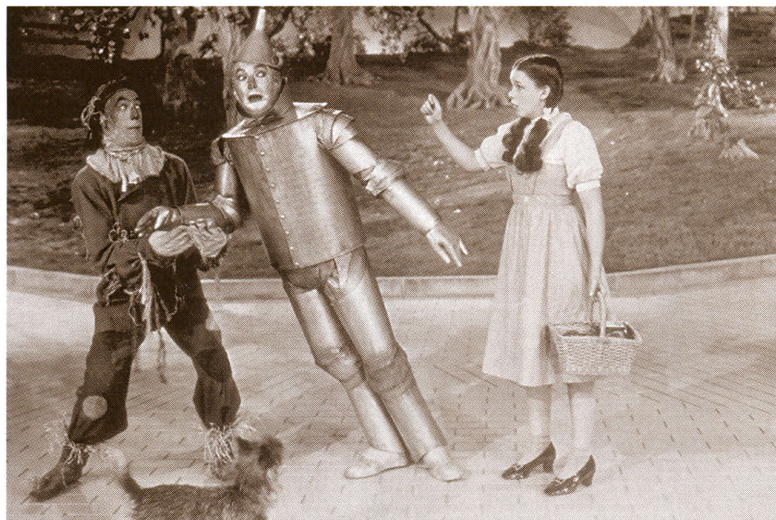
by George E. Turner

For nearly 40 years this story has given faithful service to the Young in Heart; and Time has been powerless to put its kindly philosophy out of fashion. To those of you who have been faithful to it in return... and to the Young in Heart ... we dedicate this picture.

With the words at left, Metro-Goldwyn-Mayer introduced what became the most popular Technicolor fantasy ever made, *The Wizard of Oz*. The picture was produced in 1938-39, with the Great Depression slowly grinding to a close and the spectre of

global war looming on the horizon. With a final cost of \$2,777,000, it was one of the most expensive pictures ever made.

The script was based on L. Frank Baum's 1900 book *The Wonderful Wizard of Oz*, which sold over a million copies and launched a



long series of Oz books. It had been dramatized on the stage and was filmed by the Selig Polyscope Company in 1910. In 1913, Baum founded the Oz Film Company in Hollywood and made three *Land of Oz* features, all of which failed. I. E. Chadwick produced a silent *Wizard* in 1925 which also flopped, despite featuring Larry Semon as the Scarecrow, Oliver Hardy as the Tin Woodsman, and Charlie Murray as the Wizard. In the 1930s, Samuel Goldwyn paid Baum \$40,000 for film rights. Fantasy was still a hard sell in the Thirties, but it became easier in 1937 following the immense success of Walt Disney's first feature-length cartoon, *Snow White and the Seven Dwarfs*. Louis B. Mayer, the top man at MGM, bought the rights from Goldwyn for \$75,000 in June of 1938.

MGM, then the world's richest motion picture company, stepped gingerly into the realm of "natural color." They began including two-color Technicolor sequences in silent features as early as 1924, with *The Uninvited Guest*. They also made several complete Technicolor features and shorts in the late 1920s and early '30s. Most producers were reluctant to go forward with color films even after the much improved three-color process was introduced in 1934. Aside from the added

expense, many patrons claimed that color films gave them headaches — the same complaint they had lodged against talkies a decade earlier. But by the end of 1938, with 25 Technicolor features in release, color had become a selling point instead of a liability. A look at, say, *The Adventures of Robin Hood* was sufficient to convert many naysayers.

In a last-minute decision, MGM finally took the three-color plunge for a 12-reel feature, *Sweethearts*, starring Jeanette MacDonald and Nelson Eddy. While that film was still in production, it was announced that *The Wizard of Oz* would also be filmed in Technicolor.

Mervyn LeRoy, a long-time Warner Bros. director, was lured away to MGM with a lucrative contract offer. He wanted to produce and direct *Wizard*, but was informed he was assigned to produce but not direct the high budget project.

Shirley Temple, Twentieth Century-Fox's child superstar, was originally sought for the lead role of Dorothy, but for various reasons the deal was never consummated. Universal's singing star Deanna Durbin was also considered, but her childish contours were blossoming. Judy Garland, 16, was under contract to MGM and was a stronger singer than Temple, but was at first thought to be too old for the part. She was small, however, and careful costuming and a bust-flattening undergarment made her appear much younger. Her screen test convinced everyone that she was ideal for the part.

Casting of the Wizard was more complicated. LeRoy wanted Ed Wynn, who felt that the part was too small. The studio's next choice was W.C. Fields — a mind-boggling concept! Fields begged off because he was preparing *You Can't Cheat an Honest Man* at Universal. Others who were considered included Victor Moore, Hugh Herbert, Robert

Opposite: A wrathful Wizard (voiced and played by Frank Morgan) bellows invective at his unexpected guests. This page, left: A bemused Toto (Terry the terrier) observes as Dorothy (Judy Garland) tests the equilibrium of the Tin Man (Jack Haley), with the help of the Scarecrow (Ray Bolger). Below: Under the supervision of director of photography Harold Rosson, ASC (foreground), the camera crew cuts a swath through the treacherous Haunted Forest, one of the film's many elaborate and artfully realized sets.



Behind the Curtain

A gaggle of goggle-eyed Munchkins gather around Dorothy and Glinda the Good Witch (Billie Burke) amid some truly fanciful surroundings.



Benchley and Charles Winninger. It's easy to imagine any of these actors performing the role beautifully, but the final choice, Frank Morgan, proved to be the perfect Wizard.

Lanky, loose-jointed dancer Buddy Ebsen was signed to play the Scarecrow, a part for which he was ideally suited. However, another tall dancer, Ray Bolger, wanted the part so badly that he replaced Ebsen, who was then assigned to play the Tin Woodsman. Bert Lahr, the Broadway comic who hadn't quite caught on in movies, was hired as the Cowardly Lion — and almost stole the show from everybody.

LeRoy wanted Gale Sondergaard to play the Wicked Witch as a glamorous villainess, but the studio chiefs overruled him, demanding a traditional witch. Edna Mae Oliver and Margaret Hamilton were interviewed, and the role went to Hamilton. Ziegfeld Folies star Fanny Brice

was first considered for the Good Witch, but the final choice was Billie Burke, Ziegfeld's widow. May Robson and Sarah Padden were tested for Aunt Em; Clara Blandick got the part.

Noel Langley, Florence Ryerson and Edgar Allan Woolf were the credited authors of the final screenplay, which was begun in late February 1938 and completed in August. Other writers involved were Herman J. Mankiewicz, Irving Brecher, Robert Pirosh, George Seaton, Herbert Fields, Jack Mintz and Ogden Nash.

The tale begins in Kansas, where Dorothy lives with her Aunt Em and Uncle Henry and enjoys the friendship of three farmhands: Hunk, Zeke and Hickory. One day, Dorothy's dog, Toto, bites the vicious Miss Gulch, who obtains an order for the pet's destruction. Dorothy flees with Toto but runs for home after talking to Professor Marvel, fortune-

teller and balloonist. As she arrives, a tornado hits the house. Knocked unconscious, Dorothy awakes to find the house spinning through the air. When it crashes down, she emerges in Munchkinland, which is inhabited by little people, in the Land of Oz. The house has squashed the Wicked Witch of the East. Glinda, the Good Witch of the North, arrives and slides the evil witch's magic ruby slippers on Dorothy's feet. Before Dorothy can break in her new heels, however, the Wicked Witch of the West swears vengeance. Glinda tells Dorothy to follow the yellow brick road to the Emerald City, where a powerful Wizard can help her get back to Kansas.

On the way she meets a Scarecrow who says he has no brain, a Tin Woodsman who claims to have no heart, and a lion who is a coward. The three join up and travel to the Emerald City, where a terrifying



apparition appears and finally agrees to help them all if they will bring him the Wicked Witch's magic broomstick. It's a hazardous journey. As the group passes through the Haunted Forest, Dorothy and Toto are seized by flying monkeys who carry them away to the Witch's castle. Toto escapes and brings Dorothy's friends to rescue her, but they are also captured. When the Witch sets the Scarecrow on fire, Dorothy throws water on him. Some of it splashes on the Witch, destroying her.

Dorothy and her friends take the broomstick and return to face the Mighty Oz. In his palace, Toto pulls aside a curtain, revealing a man operating levers that create the illusion of the Wizard. Humbled, he gives the Scarecrow a diploma, the Tin Woodsman a testimonial and the lion a medal, convincing them that they now have the virtuous qualities they previously lacked. Admitting

that he is just a balloonist from Kansas, the Wizard offers to take Dorothy home. However, Toto jumps out of the gondola to chase a cat and Dorothy chases after him as the balloon is carried away. Glinda tells her she can go home if she clicks the heels of the ruby slippers and thinks "There's no place like home" three times. After reciting this magical mantra, Dorothy awakens in her bed, surrounded by her aunt and uncle, the three farmhands — who bear an uncanny resemblance to the Scarecrow, the Tin Man and the Lion — and Professor Marvel, whom we realize is the Wizard.

Principal photography of this fantastic adventure story began on October 13 with Richard Thorpe directing. Hal Rosson, ASC was director of photography, with Allen B. Davey, ASC serving as Technicolor cinematographer. Thorpe had made four great Tarzan films and the

remarkable *Night Must Fall*, but the rushes soon convinced producer LeRoy that the director was not capturing the desired fairytale quality. After 11 days, production was halted and George Cukor assumed directorial duties. But Cukor left after a week to begin preparing *Gone With the Wind*. He was replaced by Victor Fleming, a hard-boiled former cinematographer. Ironically, Fleming later replaced Cukor on *GWTW* as well.

In late October, Ebsen became seriously ill from breathing the powdered aluminum dusted over his Tin Man makeup. He recovered after six weeks in the hospital, but MGM had already borrowed Jack Haley from Fox to replace him.

The next casualty was Margaret Hamilton, who was supposed to disappear from Munchkinland in a burst of smoke and fire. To do this, she had to step on a certain part of the road and descend on an elevator. After several takes, the pyrotechnics ignited too soon and she was seriously burned on the face and hand. Later, Hamilton's stunt double, Betty Danko, was badly injured while riding (on wires) the witch's smoke-spitting broomstick. The prop exploded, sending her to the hospital for 11 days and leaving her with permanent scars.

The Technicolor photography for *Oz* was difficult because of the vastness of the sets. It would have been next to impossible except that Technicolor had just introduced its new, "faster" film, which today would have an ASA rating of about 50. Even so, Rosson was astonished at the number of big arcs required to light the picture. The heat was enormous, and was especially torturous for the actors in their heavy costumes. On some sets, as many as eight cameras — about a third of Technicolor's inventory — were used, with one getting the overall scene while others were hidden among the scenery for tighter shots. The main camera,

At the Wizard's palace, Dorothy and her traveling companions (including Bert Lahr's Cowardly Lion) confront a "doorman" with a rather surly disposition.

Behind the Curtain

A fearsome twister bears down on Kansas. This impressive effect was achieved with some old-fashioned ingenuity which combined a 35' muslin funnel and a scale-model farm.



mounted on a huge crane, was kept moving, tracking with the subjects in most shots.

A preponderance of shiny surfaces, such as the Tin Man's metallic suit, the big prop emeralds, and even the sequined red slippers, caused problems by creating distracting reflections.

The Kansas scenes at the beginning, directed by King Vidor, were photographed in black-and-white. They were printed in the MGM laboratory's beautiful but long-extinct Sepia Platinum process, which not only gave the images a sepia tone, but lent an iridescent quality to the highlights. The process was also used in other pictures of the era, such as *Ziegfeld Girl*, *Tarzan Finds a Son!* and *Girl of the Golden West*. In *Oz*, frames were hand-painted in order to create the transition to color.

Wizard also presented many problems not previously encoun-

tered in three-strip photography because of its numerous special effects scenes. Two effects units operated within Cedric Gibbons's art department. A. Arnold Gillespie was in charge of miniatures, projection process and mechanical effects. Warren Newcombe headed the matte painting section, where he and his assistants produced what the studio called "Newcombe Shots."

A commercial artist from Massachusetts, Newcombe entered the movie field in 1922 by producing an art film entitled *The Enchanted City*. That led to his employment by D. W. Griffith for *America* (1923) and, in 1925, the start of his long career at MGM. Some of the best remembered 'beauty shots' in *Oz* are Newcombe composites, such as scenes in which the towering buildings of the Emerald City loom in the distance as Dorothy and her friends follow the yellow brick road. These structures strongly resemble Alex

Raymond's 1934 drawings of Ming's Diamond City in the newspaper cartoon *Flash Gordon*. In such scenes, the live action was photographed on a section of the road and the masked scene was doubled into a matching blacked-out area of the painting. A few scenes, such as the establishing shot of the witch's castle, are complete paintings, 40 inches wide and without live action.

Gillespie, a husky Texan from El Paso, began his career as a set designer at Paramount in 1922, then joined MGM as an art director when the studio opened in 1925 and stayed for 41 years. In 1936, he replaced James Basevi as special effects chief in charge of miniatures, projection process and mechanical effects. Although he won Oscars in 1944 (*Thirty Seconds Over Tokyo*) and 1947 (*Green Dolphin Street*), his most celebrated achievement is the tornado in *Wizard*.

An oft-told legend maintains

that the tornado was created by manipulating a windblown silk stocking through a tabletop set. It was hardly that simple.

Gillespie, a long-time pilot, decided that a tornado funnel was shaped something like the wind socks seen at airports. A miniature of the Kansas farm, scaled at $\frac{3}{4}$ " to 1', was built on Stage 14. It included cornfields, the house, the barn and fences. Gillespie had a 35' wind sock cast in thin rubber and ordered a steel gantry specially built and suspended from the ceiling. It was rigged to move the full length of the 200' stage. The top of the sock was attached to a small car on the bottom of the gantry. By manipulating the car, the effects experts could make the tornado twist and perform erratic moves. The bottom of the funnel was anchored in a hidden slot that ran the length of the stage.

The first test was a failure because the rubber funnel refused to twist like a tornado. A subsequent version made of muslin whipped around satisfactorily, but it quickly tore loose at the bottom. Another was built, and this time it was reinforced throughout with piano wire. This one twisted and careened wildly. Fuller's earth was fed into the muslin funnel from above, and enough of it

escaped through the porous muslin to blur the edges of the sock realistically. The big cloud of dust that surrounds the bottom of a twister was made by blowing Fuller's Earth and compressed air in from underneath. Stormy skies were created with dense smoke fed from the catwalks, while patches of spray-painted cotton attached to 8' x 4' foreground glass plates were placed in front of the camera to mask the top of the tornado and the gantry. Tornado shots were used alone and as process plates to be projected behind Dorothy during her attempt to elude the funnel. The farmhouse, which was about 3' high, was swept aloft on piano wires.

A strange sequence follows in which Dorothy and her house are inside the twister and she sees various things picked up by the cone go hurtling by. The walls of the spout consisted of a circle of painted muslin, 35' in diameter. The camera was placed in the center and spun rapidly while the muslin remained stationary. Then the individual objects that swirl past — men rowing a boat, Hamilton riding her bicycle, Auntie Em in her rocking chair, etc. — were photographed separately and double-printed onto the spinning background. The resulting

composite was back-projected outside Dorothy and the window.

The expensive gantry and its perambulating car saw further service in getting the witch's flying monkeys airborne. A dozen monkeys seen in the foreground and in scenes where they harass the heroes were men in costume, all selected because of their slight physiques. They were flown on piano wires and their wings were made to flap by means of small hidden motors. The wires had to be kept taut because kinks caused them to break. Safety nets and pads usually saved the day, although several "monkeys" landed in the hospital.

Model monkeys in various scales, of sizes down to six inches, flying on wires hanging from the tornado gantry, were used in the backgrounds and miniature landscapes. Marcel Delgado, the sculptor and technician who had made the models for *The Lost World* and *King Kong*, cast the bodies in rubber over aluminum armatures, with hinges for the wings. Each model required two wires for the bodies and two for flapping the wings. The mass of wires — more than 1,000 altogether — necessitated numerous retakes due to breaks.

Gillespie was also called in to photograph scenes in the poison poppy field, for which it was necessary to have the camera move along the ground surrounded by flowers. He had tracks made of half-tubing and designed a special dolly equipped with half-tube runners that fitted over the tracks. The huge camera moved smoothly and quietly over the well-lubricated tracks.

In one memorable scene, Hamilton's face appears in a large crystal ball. The previously photographed witch was projected from the side onto a mirror set at a 45-degree angle, relaying the image onto a small translucent screen inside the hollow ball.

The giant floating head of the Wizard was front-projected onto

Safe in her own bed at last, Dorothy is reunited with Uncle Henry (Charley Grapewin) and Auntie Em (Clara Blandick).



Behind the Curtain



Our high-stepping heroes pause along the Yellow Brick Road, awestruck by the shimmering spires of Emerald City. The distant vista was actually a matte painting by Warren Newcombe.

heavy clouds of white steam piped in from outside the stage. The front-projection process used today had not been developed at that time, but the close-up registered effectively on the steam in one of the larger projected images that had been attempted in color.

The arrival of Glinda the Good Witch in Munchkinland is a deft bit of fantasy. A silver ball floats like a giant bubble into the scene, looming larger and larger as it moves into the foreground of the set. Upon alighting, it dissolves to reveal Glinda. The actual ball was about 8" in diameter and was not moved while being photographed. Instead, the camera moved to make the ball appear to describe the path it was to follow. The set and actors were photographed separately, and the two films were then printed together as a simple double exposure without protection mattes, which lent the ball an ethereal quality.

Principal photography wrapped on March 16, 1939 after five

months of production. The final cost was \$2,777,000. *The Wizard of Oz* was highly successful in its New York run at the Capitol — most of the New York critics hated it, but who cared? — and the Hollywood premiere at Grauman's Chinese Theater was lavish. The Harold Arlen/E. Y. Harburg songs, especially "Over the Rainbow," were well-received. The picture's timeless appeal has since made it a cherished tradition in theaters and on television the world over. ■

Credits

A Metro-Goldwyn-Mayer picture; produced by Mervyn LeRoy; directed by Victor Fleming; based on the novel *The Wonderful Wizard of Oz* by L. Frank Baum; screenplay by Noel Langley, Florence Ryerson, Edgar Allan Woolf; adaptation, Noel Langley; photographed in Technicolor by Harold Rosson, ASC; associate, Allen M. Davey, ASC; special effects, A. Arnold Gillespie; Technicolor color director, Natalie Kalmus; associate, Henri Jaffa; art director, Cedric Gibbons; associate, William A. Hornung; film editor, Blanche Sewell; musical program and adaptation by Herbert Stothart; associate conductor, George Stoll; orchestral arrangements, George Bassman, Murray

Cutter, Paul Marquart; vocal arrangements, Ken Darby; musical numbers staged by Bobby Connolly; set decorations, Edwin B. Willis; costumes by Adrian; recording supervisor, Douglas Shearer; character makeups created by Jack Dawn; songs: "Over the Rainbow," "The Merry Old Land of Oz," "If I Only Had a Brain," "If I Only Had a Heart," "If I Were King of the Forest," "Lions and Tigers and Bears," "We're Out of the Woods," "Follow the Yellow Brick Road," "Ding! Dong! The Witch is Dead" — music by Harold Arlen, lyrics by E. Y. Harburg; matte paintings, Warren Newcombe; added direction, Richard Thorpe, King Vidor, George Cukor; assistant directors, Al Shenberg, Wallace Worsley; contributions to screenplay, Herman J. Mankiewicz, Irving Brecher, Ogden Nash, George Seaton, Samuel Hoffenstein, Robert Pirosh, Herbert Fields, Sid Silvers, Jack Mintz, John Lee Mahin; assistants to producer, Arthur Freed, William Cannon; Technicolor technicians, George Cave, Fred Detmers, Henry Imus; added choreography, Albertina Rasch; makeup artists, William Tuttle, Jack Young, Charles Schram; production illustrators, Hugo Ballin, NA, Jack Martin Smith; flying ape models, Marcel Delgado; operative cameraman, Sammy Cohen; production managers, Keith Weeks, Joe Cooke; wardrobe, Sheila O'Brien; violin solos, Toscha Seidel; orchestral preparation, Roger Edens; assistant choreographer, Arthur Appell; electricians, A. W. Brown, Chris Bergsrich; prop master, Harry Edwards; head grip, "Pop" Arnold; Western Electric recording; Running time, 102 minutes. Released August 25, 1939.

Dorothy, Judy Garland; *The Wizard*, Frank Morgan; *The Scarecrow*, Ray Bolger; *The Cowardly Lion*, Bert Lahr; *The Tin Man*, Jack Haley; *Glinda*, Billie Burke; *The Wicked Witch of the West*, Margaret Hamilton; *Uncle Henry*, Charley Grapewin; *Aunt Em*, Clara Blandick; *Nikko*, Pat Walsh; *Toto*, Terry; *Guard*, Mitchell Lewis; *Woman with cat*, Lois January; *Munchkins*, Billy Curtis, Little Billy, Prince Denis, Lady Ethel, Jerry Marin, The Singer Midgets and others; *Bits*, Charles Irwin, Rolfe Sedan, Tyler Brooke, Bobby Watson, Charles Oliver Smith, George Beranger, John George, Donna Massih; *Flying Monkeys*, Buster Brody, Harry Monty, Sid Dawson, Harry Cogg. *Voices: Munchkins*, Billy Bletcher, Pinto Colvig, Delos Jewkes, Carol Tevis, Zari Elmassian, Lorraine Bridges; *Shakespeare reading*, Adriana Caselotti; *Singer for Billie Burke*, Lorraine Bridges; *Singers*: Julietta Novis, Georgia Stark, Ken Darby and The King's Men, St. Joseph's Choir, The Rythymettes, The Debutantes; Abe Dinovitch, Harry Stanton, Lois Clements; Virgil Johansen, Robert Bradford, Nick Angelo.

Our thanks to Fred Detmers, Buddy Ebsen, Lois January, and the late George Cukor, Billy Curtis, Marcel Delgado, Harold Rosson, ASC and Harry Wolf, ASC.

The Restoration of Oz

by Bob Fisher



Chances are that no film has been seen by more people than *The Wizard of Oz*. Victor Fleming's 1939 classic has made an indelible imprint on American pop culture, giving us durable metaphors ("the yellow brick road") and memorable lines ("You're not in Kansas anymore").

It's safe to assume that most moviegoers have experienced *The Wizard of Oz* through the narrow perspective of a television screen. An ambitious restoration project by Warner Bros. has returned the film to its original splendor, with the possible addition of a special effects dance sequence involving the Scarecrow. (At press time, that decision had yet to be made.)

Pacific Title/Mirage was selected by Warner Bros. to restore the black-and-white segments of *The Wizard of Oz*, plus the additional Scarecrow sequence, which was filmed in Technicolor. Given the possible inclusion of the extra sequence, Pacific Title/Mirage was responsible for scanning some

44,500 frames (of the approximately 85,000 in the original 101-minute movie) for image processing, and then recording them back onto film.

That figure surprises those who only remember the black-and-white footage from the scene in which Dorothy opens the door of her Auntie Em's house to discover that a tornado has transported her to a Technicolor universe. Phil Feiner, president of the optical division of Pacific Title/Mirage, reminds us that the first two reels of *Oz*, as well as the last, are black-and-white.

Dye fading is not inherent to the Technicolor three-strip process. The images themselves were recorded simultaneously onto three strips of a special black-and-white film custom-made by Kodak: one strip was sensitized to record the density of cyan colors, another was sensitized to yellow and a third to magenta. A patented imbibition process was used to transfer the image information onto release prints for theaters. The vivid colors came from dyes added during this

process.

Feiner notes that the original Technicolor imagery can be recreated by making separate passes with each of three strips directly onto an answer print. That's presuming that the original black-and-white separations have not been scratched or damaged in other ways, and that the base on which it is coated has not shrunk. (Cinetech handled this portion of the restoration project.)

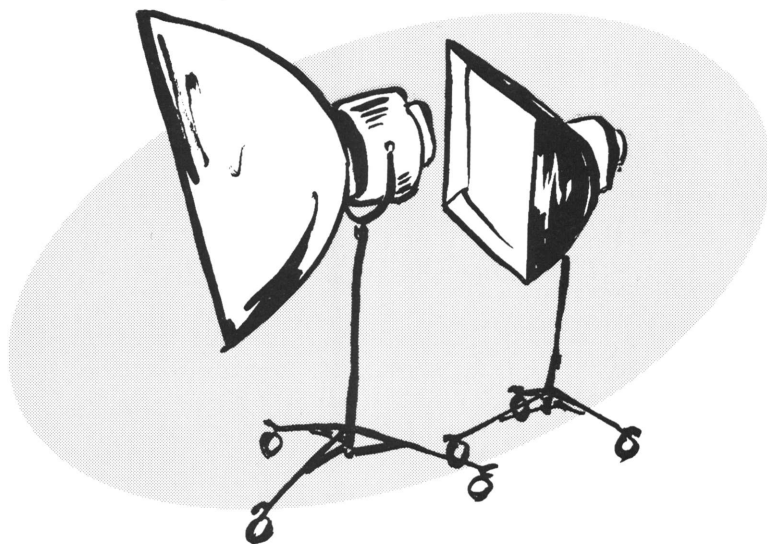
The original black-and-white negative photographed by Hal Rosson was lost in a 1970s fire at The George Eastman House in Rochester, New York. The only remaining copies were protection fine-grain intermediates made by MGM Labs in 1960. In 1984, a copy was struck from one of those intermediates. However, in 1960, the fine-grain film stocks and the techniques employed for making optical and contact copies were nowhere near as sophisticated as they are today. "We now use wet-gate technology to protect the film when it is contact-printed or duplicated with an optical printer," Feiner explains. "That eliminates the major source of cell abrasions and emulsion digs, which can occur

The Wicked Witch of the West (Margaret Hamilton) and a malicious flying monkey track their prey with the help of a crystal ball. The frame at left is the restored version of the original scene, shown below.



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The Restoration of Oz

during the duping or printing process. I would guess that the original negative was probably used to make more than 10 and perhaps as many as 200 release prints. The result was that there were scratches, embedded dirt and other anomalies copied onto the fine-grain master in 1960."

The restoration team at Pacific Title/Mirage tackled the task of restoring *Oz* with missionary zeal, which Feiner attributes to the company's deep roots in the industry. Pacific Title was founded in Los Angeles in 1919, the very same year that the ASC came into being. Feiner joined the company in 1977 as an optical camera operator on the night shift. "We're proud of our history," Feiner says, "which includes a large amount of the optical restoration work on the *Star Wars* trilogy (see *AC* Feb. and April '97). I believe we bring a unique film aesthetic to the use of digital tools for restoration."

Feiner notes that advances in digital film conversion and image-processing technologies provides a powerful toolkit for restoration projects. This proved to be a key advantage on the *Oz* undertaking, given the job's aggressive eight-month schedule.

The picture's fine-grain master was stored at the Library of Congress. Pacific Title/Mirage converted it to digital format with a Kodak digital film scanner at full film resolution. According to Feiner, this process requires 4K x 3K of digital data with 10 bits of log space per pixel. "Some people say 3K, or even 2K, and 8-bit log space per pixel is sufficient, but this film is an important part of our heritage and culture," he says. "Countless millions have seen it on TV. Finally, they can now see it in a cinema the way it is meant to be seen. It would be a crime to cut corners and do anything in a sub-standard manner."

The fine-grain intermediate provided by The Library of Congress showed no visible signs of vinegar

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syndrome or shrinkage, and it had a stable base. Feiner opted to make a contact liquid-gate dupe negative of the fine-grain IP, which eliminated the worst of the abrasions and emulsion digs. "We test scanned the original fine-grain and the dupe to see if there were discernible differences in resolution, sharpness and overall image quality," he says. "When we scanned our dupe at full film resolution, there was no loss in image quality. If we had scanned from the original fine-grain, we would have copied the abrasion and emulsion digs and that would have required extensive digital paint work."

If one scans a full-aperture anamorphic frame in full color, the file size would run about 45 megabytes. However, scanning from a black-and-white element at full film resolution yields about 13 megabytes per frame — a rate that allows for more efficient data management at faster speeds.

The digital restoration work was executed on Silicon Graphics 02 platforms and several dual-processor Octanes running Matador Paint and Cineon applications software. The workstations were networked to an SGI Origin 2000 file server that provided high-density image storage and rapid transfer rates. "We elected to use Cineon software for automated dust-busting, with one important provision," says Feiner. "You have to be very careful that you don't lose fine details like highlights in people's eyes. The only way to do that is to compare the processed images on the computer screen to a matching frame of the source material."

The images were stored on the high-speed disk array for display at 2K resolution. The digital artists were then able to flip the display between the source material and the processed images. "We assembled and trained a staff with the appropriate skills and film sensibilities, plus the dedication needed to do the job properly," Feiner says. "The

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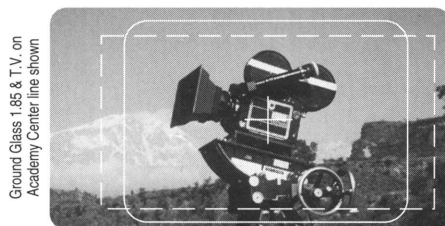
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The Restoration of Oz

supervisor, Mark Freund, has been a great optical camera operator for us for years.”

The dancing Scarecrow sequence was an outtake stored on 250 feet of film — less than three minutes of screen time — in the CRI (Color Reversal Intermediate) format. All of the original three-strip Technicolor film from that period was recorded on a potentially flammable nitrate-based emulsion. Feiner speculates that MGM decided to rid its lot of nitrate-based film sometime in the late Sixties or early Seventies.

When Feiner inspected the Scarecrow scene, the image seemed slightly off. “I noticed that there were two frames, right before the pictures started, with clear lines outside the perforations,” he says. “Most people wouldn’t have noticed that, but I’ve worked on a lot of trailers for TV in CRI format. Still, it took me about a

day to discover what had happened. One of our people [Vince Roth] had worked in the MGM Labs optical department for 27 years, and he remembered an optical camera operator who had worked on those conversions.”

MGM Labs had set up a production line to copy the nitrate film onto CRIs, recording from the emulsion side rather than the base side. That was then considered to be the archival master. When requests were made for duplicate negatives, MGM Labs fashioned a copy from this source. “I realized I had one of the dupes,” Feiner says. “Warner Bros. did a diligent search and found the original CRI. That was important, because we wanted to be as close as possible to the original image quality. There’s no magic bullet with digital technology — you can only scan in the image quality on the

source material.”

After scanning, the image quality was cleaned up by the digital artists, who removed dust and dirt spots and painted out the wires used to help actor Ray Bolger to fly in the Scarecrow dance number. The artisans also compensated for yellow dye fading. “It took an aesthetic eye,” he explains. “Dorothy is in the scene in question, and we needed to match her skin tones to scenes on either side of the cutting done by the editor.”

The digital files for both the Technicolor and black-and-white sequences were converted to intermediate film with a Kodak laser film recorder. “Our goal was simple,” Feiner says. “We wanted to provide a pristine internegative which accurately emulates the original *Wizard of Oz*, and provide an enduring film record for future generations to enjoy.” ■

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Short Takes

Virtual Camera Moves and a Carbon-Copy Army

Impetuous Motion

by Jay Holben

The latest video for the band 98°, entitled "It's All Because of You," takes place in the bohemian environs of San Francisco and begins with a beautiful young woman exiting a storefront to approach a bus stop. As she strides onto the street, the camera's POV tracks her movements with several swift, staccato pullback motions. Then, a billboard across the street from her comes alive, and the testosterone-laden quartet of 98° croons softly from within the placard's all-white background, a space into which the viewer is then transported. Back in the city, the camera shifts again. This time, the perspective engineers several staccato shifts that arch around

This generously saturated, high-contrast video was directed by Wayne Isham and produced by Mr. Pink, LLC, a division of Quentin Tarantino's production company A Band Apart for Motown Records. The video's magical camera transportations were provided by the San Francisco-based Radium digital studio.

Cinematographer Daniel Pearl employed an Arriflex 435 ES with Zeiss prime lenses and Eastman Kodak EXR 50D 5245 and Vision 250D 5246 stocks. Shot over two days on five different locations in and around the San Francisco Bay Area — including atop the spires of the Golden Gate Bridge — the video contrasts the city's vivid, saturated colors with the sharp whites of both a featureless limbo and an overexposed beach that encompasses the world of 98°.

As usual, Pearl exploited his favored format: Super 35. "There is a common misconception that it only helps when you're letterboxing," the cameraman says, "but that's not the case. Depending on which aspect ratio you're shooting in — either full-frame, TV or letterboxed — you're still getting 20 to 25 percent more negative area [than if one were shooting in 1.85]."

Among the video's visual highlights are its staccato shifts — instances where the camera POV makes swift skips to different vantage points within one location, or sprints into a new locale while the principal subject remains in normal motion. Radium co-founder and creative director Simon Mowbray explains the technique: "What you're looking at is a combination of a traditional morph and a nested zoom. It's similar to stereo photogrammetry, but with a single camera. We photographed



the action from four or five different vantage points and repeated the same action in all of them. Once we had those five pieces of footage, we morphed between them at different points in time. The result is a sliding effect, where the camera looks as if it's traveling at 90 miles an hour to its next location, but the talent moves at the same pace."

To create a morph — a sequence depicting a gradual transition between two images — the digital artist imposes a wireframe structure on an object and assigns key vertices in the first and last frames, or the first and second subject. The computer then interpolates the "between" frames and creates a fluent transition between the two objects, much like that of a traditional dissolve. With morphing, however, the first image is not merely fading out while the second fades in; they are fading into each other.

Image morphing "started out as something that ILM was using for feature films [such as *Willow* and *Terminator 2*], and suddenly it was everywhere," says Mowbray. "Now we're using the same technique as more of a workaday tool that you don't necessarily

San Francisco locations added scenic value to the "It's All Because of You" video, which was photographed by cameraman Daniel Pearl.



the young woman as she waits for a bus. Nearby, one member of the quartet sings softly from within a poster at the bus stop. The woman boards the bus, and the POV positions itself *inside* an image of the Golden Gate Bridge on the side of the transit vehicle. The young woman continues her journey via taxi and trolley car, while all around her — in signs and advertisements — the four men of 98° croon "It's All Because of You."

Photos courtesy of A Band Apart Music Videos.



A billboard becomes a frame for composited images.

identify as a morph, but rather something that is one part of a whole."

The particular morphing technique used for the "It's All Because of You" video also incorporated nested zooms, which were also created digitally by the Radium team. "To create this effect, you first shoot something in close-up," explains Mowbray. "Then you shoot a wider angle, and maybe another even wider angle — all in lock-offs. Afterwards, in post, you bury the shots into one another so they're all nested together, and then do an electronic zoom. You have a lot more control that way. For instance, if you started a shot from a helicopter that is, say, 500' above the ground and you want to zoom into an extreme macro of a flower on the ground, there's no way you can achieve that zoom practically. But you can do it electronically by shooting two shots — one from the helicopter and a macro of the flower — and digitally zoom from one to the other.

"There aren't many technical requirements for [shooting the elements for] nested zooms except that the perspective should not change too much from one shot to the next, and the angle to the subject should not change. The only real restriction for this type of effect is that the camera can only move about 30 degrees for each increment. If the camera moves more than that in a single increment, then we'd have to digitally rebuild most of the scene, which is both time-consuming and costly. A single move can be considerably more than 30 degrees, as long as it's broken into sections. However, we wanted perspec-

tive and angle changes for the 'It's All Because of You' video. We have one large move around a bus stop that is about 270 degrees in 30-degree increments. The camera, however, is never actually moving, because all of the elements are locked-off shots. We morph for about a 15-frame transition between each of those lock-offs."

To facilitate the effect, every shot was broken down into specific elements, each of which was morphed separately. When an individual was morphed, for example, there would be separate effects processes for different body parts. To lend to the effects' credibility, the artists also morphed certain objects in the background, midground and foreground. If discrepancies arose between the parallax perspectives of the morphed objects, the differences could be offset by constructing certain elements within the shot's space via CGI. Mowbray expounds, "If the differential angle between two camera positions is too obtuse, and a foreground element obstructs a background element, we will most likely have to clean it up by reconstructing that background element from scratch so that the morph has a starting and ending geometry for that element. Toward that end, we usually shoot a lot of still photography on the set to make sure we have coverage of things excluded by foreground objects. We then scan in those photographs and use them to patch things up. On this video, it helped that the morph transitions were pretty quick — about 15 frames. We added some motion blur to smooth out any rough edges that the morphs may have created."

Mowbray notes that numerous onlookers caused additional problems during shooting in San Francisco's bustling North Beach district, an area known for its European style layout of open-air restaurants and sidewalk cafes. "People continually wandered though frame and stopped to stare at the camera," he recalls. "We tried to shoo them away, sometimes successfully, sometimes not. We had several little old ladies who would wander

through; when we shooed them away, they'd shake their walking sticks at us. I'm sure there's a little old lady between frames in the morphs shaking her stick at us."

Mowbray credits the morph effect's success to the good working relationship that he, Isham and Pearl forged during the production. "Wayne had seen a European commercial that used a similar technique," Mowbray asserts, "and he came to us with that and a children's book called *Zoom*, which was an illustrated adventure series that went from a microscopic image of an object to a super-wide shot of it from far away in various increments. We took those elements and decided on the morph/nested zoom combination right from the very beginning."

One extremely important restriction on-set was that the video's lead actress had to repeat her actions for each of the camera positions — with perfect precision. "If we had been shooting with multiple cameras, this would not have been an issue," says Pearl. "But with one camera, it was absolutely essential that she precisely repeat her choreography."

Also requiring a certain amount of precision was the placement of the actors from one setup to the next. "You don't want the talent to move left of center in one shot, right of center in the next and then left of center again," explains Pearl, "so you either keep the talent in the center of the frame or gradually move them across the frame in each element of the nested zoom. Either way, there has to be continuity. To facilitate that, I made a special gridded glass, like graph paper, so I could basically play [a version of the board game] 'Battleship' with the actress. If her head was at, say, [the equivalent of quadrant] B2 in one shot, then we could keep her there or move her to C2 for the next phase of the transition. We took a video printout of each setup in a sequence and used that to maintain the continuity of her placement.

"The major challenge in a project like this," Pearl concludes, "is that every

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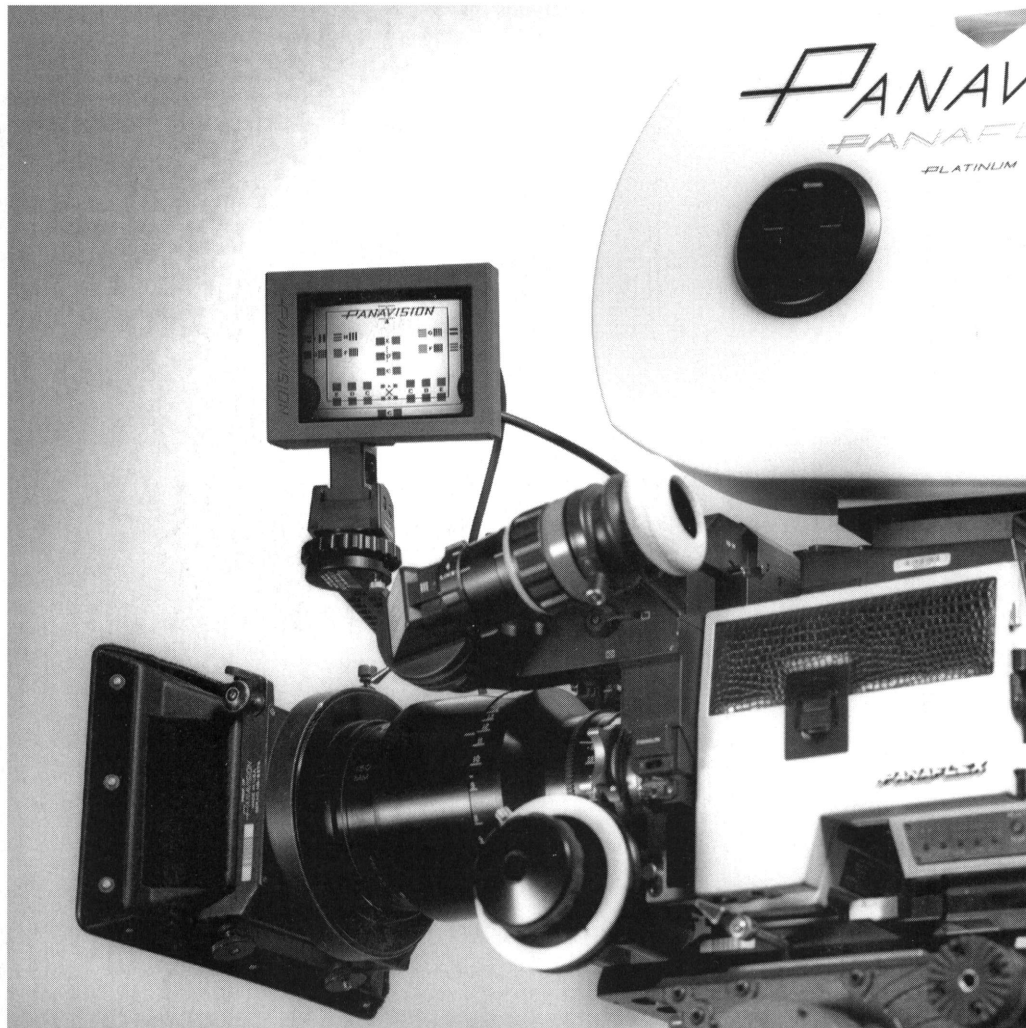
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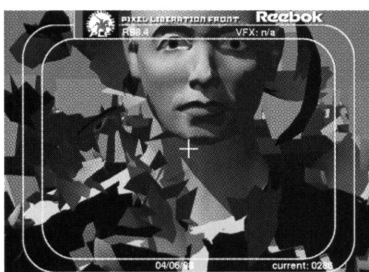
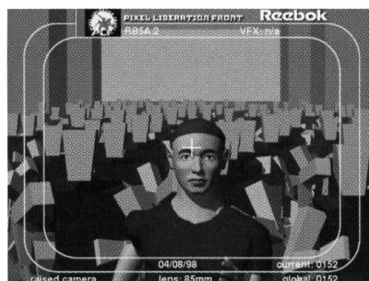
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scene needs more setups than normal to tell the story. We couldn't get away with a simple one-shot element; each element required upward of six setups, which was very demanding on our time."

Race Against Conformity by Jay Holben

The Reebok commercial "Clones" starts off in a dreary city of smoke-strewn skies as more than 6,000 runners sprint across pathways of wet cobblestone. As the viewer is pushed progressively closer to the masses, an odd similarity becomes discernible: each runner is identical, with the exact same body, same face and same clothing — 6,000 replicants racing in a nightmarish marathon. As one runner breaks away from the pack, a stress fracture forms in his face — quite literally, he's cracking up. With the very next step, his leg splinters and then his entire body explodes. From this shattered shell, a new man emerges and quickly takes his place at the head of the pack.

Conceived by New York agency Berlin Cameron & Partners and produced by Mars HSI to celebrate the individuality of Reebok's DMX footwear technology, *Clones* stands out not only for its dynamic visual construction, but for its use of photographed images above and beyond computer-generated imagery. Commercial and music-video veteran Samuel Bayer directed and photographed the spot with the goal of being as "real" as possible. "Sam Bayer's mantra from the very beginning was 'organic, organic,



organic,'" explains the spot's visual effects producer, Steve Lavy of V12 in Sunland, California. "We did end up motion-tracking some elements, painting, and doing substantial detail work in Flame, but the stuff that really stands out in this commercial is Sam's photography of the organic elements."

"It was absolutely important to me to keep as much of the spot 'live' as possible," offers Bayer. "I was looking at a lot of other spots out there where people were digitally cloning in order to get crowds. I don't like that. I'm old-school; I like seeing things before me."

Filmed on location in Prague, Czech Republic, the massive undertak-

ing employed more than 6,000 Czechoslovakian soldiers and townspeople to portray the marathon runners. Dressing all of the runners alike proved sufficient for wide shots. More creative techniques were required once the camera came closer to the action. "The first 20 people behind the lead runner are wearing prosthetic faces that were made from a life-mask of Terry Simpson, the lead runner," Lavy explains. "[Due to the shallow depth of field], those runners are off the focal plane just enough that they completely look like him."

Utilizing a combination of Eastman Kodak's Vision 500T 5279 and Vision 250D 5246, along with six Panavision Platinums, Bayer took advantage of Prague's dreary ambiance to define the spot's look. "I'm a big advocate of natural lighting," he says. "I have a really naturalistic approach, and Prague was really beautifully overcast. I would take a cloudy day over anything, and pretty much all of 'Clones' was shot in natural light. As far as stocks are concerned, I really miss 5297 [Eastman Kodak's pre-EXR 250D, which has been discontinued]. That was my favorite stock because it had a very old feeling, but I would take Vision 500T [5279] any day, because you can do anything with it. You can push it or pull it and it holds color very well. The 5246 also holds up well and intercuts nicely with the 5279."

Further refining his look, Bayer employed a special set of lenses that Panavision manufactured for him. "They were made to emulate the quality of old-fashioned lenses, such as old Cookes. I love to play those and the Superspeeds to the basement on the lens with very shallow depth of field."

"The way I like to shoot," he adds, "is running and gunning. I go for what looks good right at the moment. I'm not comfortable with long setups and meticulous planning; although I understood it was a necessary evil on something like this, I was really much happier just shooting." Bayer further notes that a large percentage of the commercial was photographed with Photosonics cameras at speeds of up to 360 fps. "I love shooting at really

Right: A series of frames comparing PLF's previs work with the final images shot on location in Prague for the *Clones* spot. Below: Makeup artists create the army of doubles with the aid of simple masks.



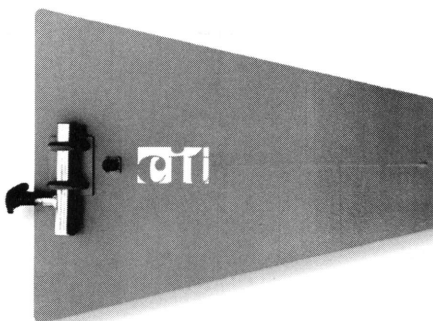
high speed — it adds a grace and power," he says. "For a lot of the shots, I bracketed things at 60, 90 and 120 fps, which made our job twice as hard on almost every shot because I was double- and triple-covering myself [in order to] give the editor more choices. But, again, I prefer something that was really shot at a certain speed rather than arbitrarily sped up or slowed down in postproduction — that feels fake to me."

The spot makes very limited use of CGI, but The Mill (one of London's top postproduction facilities) exploited its Discreet Logic Flame/SGI platforms to composite multiple photographic layers in almost every shot. From the first few shots of the marathoners, the view is broken by individual wisps and columns of smoke, which were photographed separately against a black background on a Los Angeles soundstage and later composited into the streets of Prague. Several photographed layers of runners were then added together to exponentially increase the 6,000 extras into an innumerable mass. "In those particular shots, there are about 25 layers with smoke, light and people," explains Lavy. "We didn't do any CGI cloning, but we did shoot about 16 different passes of people running by locked-off cameras that were specifically measured for the proper distance and perspective in order to be quilted together later on."

In order to coordinate the many photographic layers required for the spot's completion, Lavy and Bayer employed extensive digital previsualization prior to traveling to Prague. Lavy turned to Santa Monica-based Pixel Liberation Front to accomplish this task. "Steve and I had worked together on *Starship Troopers*," expounds PLF president Colin Green (see *AC* Nov. 1997). "He was very familiar with the value of previs. He brought us on to design the sequence of the runner cracking apart. When we came on, the sequence had not been completely ironed out. Depending on who you talked to, it was a little unclear as to whether this guy was exploding, or his skin was peeling off, or he was shattering like glass. In order to start producing the elements, we had to

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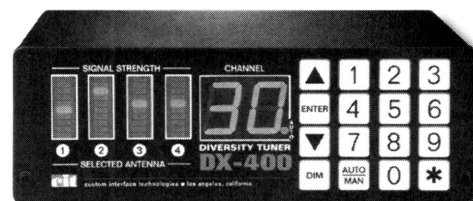


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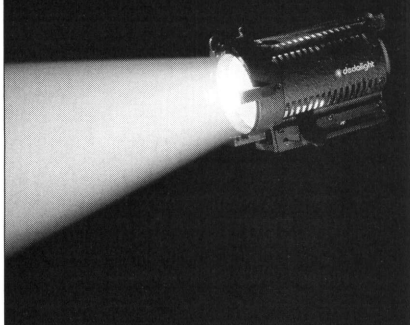
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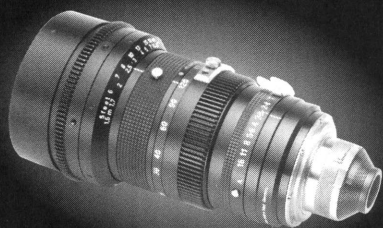
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determine what the actual event was. We did some design studies as to how the breaking-through would happen and helped nail down the right technique. We then had to figure out the camera angles and lenses that would best serve the duplication of the crowd, and decide when they had to use masks on the other runners or just the same wardrobe and hair. Next, we had to determine how to shoot several layers and still keep continuity and perspective once they were composited together.

"Aside from refining the conceptual design and providing a basic shooting blueprint," Green continues, "the main practical benefit that we provided was to give the production team a simulated finished product through our pre-vis to compile an edit list and timing. Because the commercial was made up of so many individual layers — like all of the shattering pieces that were shot one section at a time — they had no way to assemble the pieces into a rough cut of the commercial. Often, you can quickly composite a foreground over a background to get a representative idea of what the shot will look like — something good enough to make an edit or just to make sure that everything is working — but here, no individual elements could do that. None of the pieces on their own were representative enough of the shots to determine shot length or to time out the spot. Even after they had shot all of the elements, there was no way to organize the compositing, so they wound up cutting a rough version of the commercial from our 3-D previs work."

"We took PLF's previs work and cut it into the plate sequences from Prague," details Lavy. "We were able to get a concrete idea of what was to happen, because people could see it and understood what they were eventually going to get."

Working under extreme time constraints and considerable pressure to satisfy the needs of the clients, senior Flame artist Anthony Walsham and Sally Heath, the producer for The Mill, "threw four or five Flames at [the project], backed up by several Flints and retransfers done on their Spirit DataCine," says

Lavy. "They were working pretty much frame-by-frame to get what Sam wanted, and it was as close to a feature-film treatment for a commercial as I had ever seen."

To achieve the shattering effect, Bayer asked Steve Johnson's XFX in Burbank, California to make a full body cast of lead runner Terry Simpson. "He was an incredible trooper who sat through weeks of body casting without a single complaint," commends Lavy.

"Because of the extreme nature of the pose, there was no way the actor could maintain that position for the length of time it would take to form the entire body cast," explains XFX supervisor Matt Singer. "We therefore did the cast in sections and later pieced them together like a mannequin. Once we put it together, Bob Neuton and Eric Fiedler, who were in charge of the mechanical effects, scored the figure in strategic sections with knives and other tools to make the body fall apart in interesting pieces. Sam Bayer was very specific; he didn't want the pieces to explode, but rather fall away as the runner moved. We achieved that effect by using pneumatic cannons with heads on them that looked like flowers, which blew BBs into several directions simultaneously and pushed the cast to fall apart at the pre-scored locations." The destruction was photographed in front of a greenscreen at 360 fps. Later, Anthony Walsham at The Mill texture-mapped Simpson's likeness from the plates shot in Prague onto the individual pieces as they fell.

"Ultimately, all of those pieces — and we actually counted 336 individual body pieces exploding over time — were eventually carefully mapped and placed by Anthony and threaded together in the final shot," adds Lavy.

"Terry's other great contribution was his uncanny ability to replicate motion," commends Lavy. "Other than the motion-control rig we were using on the greenscreen stage, nothing was more consistent than Terry in his ability to repeat exact speed and movements, even down to his facial expressions. He's an Olympic athlete, and his control over his body is really amazing."

New Products

compiled by Michele Lowery and Andrew O. Thompson



Director's Finder

Kish Optics announces the introduction of the Ultimate Director's Finder designed for the 16mm and Super 16 formats. This newest Ultimate product, modeled after the field-proven 35mm version, also features interchangeable mounts to accommodate all leading lenses, multiple ground glasses, and an optional video tap powered by an on-board battery.

Also available with the 35mm version is a 2x anamorphic desqueezer. This instrument was recently utilized by ASC members Vilmos Zsigmond (on *Playing by Heart*, see p. 28) and Matt Leonetti (on *Star Trek: Insurrection*, to be covered in next month's *AC*). Comments *Trek* camera assistant David Garden, "The Ultimate was used on every scene to configure the master shot. Typically, a director's finder is implemented to set up the camera positions. It allows the director, cinematographer and operator to easily preview a shot and collaborate on creative decisions. Once the lens and movement of the camera have been determined, the ground is marked and the grip knows precisely where to put the dolly track. It saves valuable time, is simple to use and allows decisions to be made without exposing film. Optical quality dramatically separates the Ultimate from any other manufacturer's viewfinder."

Kish Optics, (818) 506-5800, fax (818) 506-5856.

Diva on Deck

Kino Flo has designed its new Diva-Lite 400 fixture for video field work. Portable and flicker-free, this lamp has universal power input (85 to 265vAC), draws as little as one amp, and supports full-range dimming (100 to 5 percent). It functions as a portable softlight for EFP



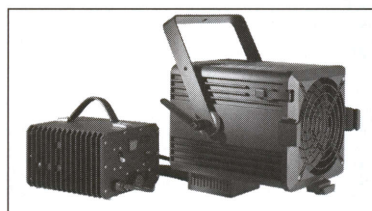
and ENG use, and when fitted with an adjustable fabric diffuser — known as the Flozier — the illumination softens to become a more flattering key light. The Diva operates with either tungsten or daylight tubes with a rating of some 10,000 hours. Other features include a focusing louver, gel frame, ball-and-socket center mount, and built-in barn doors. The fixture's lightweight, versatile design makes it fast to set up and easy to transport.

Kino Flo (818) 767-6528, fax (818) 767-6528, e-mail: kinoflo@aol.com.

A 600-Watt Wildfire

Wildfire, Inc., introduces its 600-watt UVA spot-to-flood fixture. The WF-

600S/F offers improved focusing ability and light control with its 250' throw, precision movable lamp mechanism, (20-



40-degree beam spread) and new hot-strike feature for instant on/off operation. This lamp offers remote switching capabilities that allow control from both ballast and head. The fixture comes standard with a universal voltage ballast and features a UV-transmitting heat shield and Wildfire's deep violet silicate filter to ensure maximum UVA output (320-405nm) with minimal visible light transmission. A cutoff switch is provided for safe and easy re-lamping. The WF-600S/F is constructed from corrosion-resistant 6063 aircraft aluminum with a durable black-powder-coat finish and stainless-steel hardware. The fixture weighs 24 lbs. with a separate 10 lb. compact ballast. Its maximum operating current is 5 amps at 60hz. Each unit comes supplied with a bail assembly, heavy-duty pipe-mounting clamp, safety cable, and a 25' ballast-to-head cable with industry standard Veam connectors.

Wildfire, Inc., (310) 645-7787, fax (310) 645-9009, website www.wildfirefx.com.

Triple Threat U-3

Cool-Lux, a Pana-Tek company, introduces its enhanced U-3 Tri-Light. The new unit has three MR-11 lamps and is constructed with a lightweight, high-impact aluminum casing. It has a new one-piece construction front gel frame



folder. The U-3 weighs only 10 ounces, has a diameter of 2 1/2" and dimensions which measure 3" high and 3 3/4" long. The fixture can be used with flood lamps for close-up shoots; as a spotlight for illuminating events up to 100' away; or in a combination. All three MR-11 lamps are individually controlled, or one can use the master switch to operate all of the lamps, or specific units. Each lamp is 35W for a total of 105W. The U-3 is fully equipped with diffusers and gels for daylight use. Other specifications include a heavy-duty, 16-gauge, flexible coiled cord with a 4-pin XLR connector; individual switches for each lamp with an LED indicator; and a master switch to control preset lamp indications. The U-3 works for 12, 13.2, or 14.4 power sources.

Pana-Tek, (805) 482-4820, fax (805) 482-0736, e-mail coollux@cool-lux.com.



Canon's Concertina

OpTex now offers a concertina-style shuttered eyepiece for use with the Canon XL-1. Due to its viewfinder's construction, the camera's LCD screen must not be pointed at direct sunlight or any point source as it may become damaged. To alleviate this possibility, the

eyepiece functions to open only when the user's eye is pressed against it and closes immediately upon release.

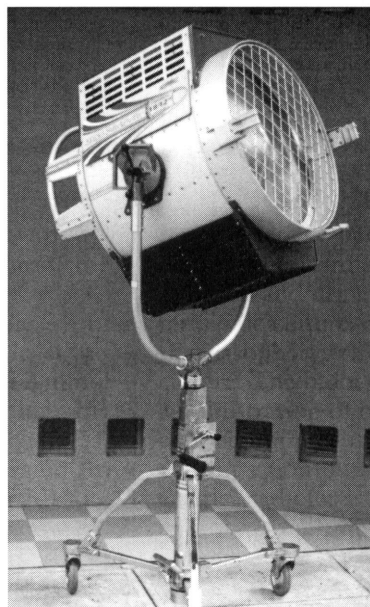
OpTex (973) 335-4460, fax (973) 335-4560.



Metal-Halide Lamp

ILC Technology, Inc. has developed the Daymax DT1405W/24, a 400-watt metal-halide lamp with a 1,500-hour lifetime. The lamp's bulb is precisely aligned in a ceramic reflector. Its 4mm arc gap and 5600°K color temperature are ideal for applications that require high efficacy and high luminance.

ILC Technology, Inc. (408) 745-7900, fax (408) 744-0829, website: www.ilct.com.



Super Silver Bullet

Cinemills now carries the 18/12K Super Silver Bullet, which offers the user a choice of either 18KW for maximum output or 12KW for normal usage. The new 18/12K selection provides 50 percent or more output in the flood position and 25 percent or more output in the

spot position. It features a spring-action shock-mount assembly for globe protection and maximum safety, and sports a lightweight construction. Either the 18/12K magnetic ballast or any of the available flicker-free electronic ballasts may be used with the source.

Cinemills, (818) 843-4560, fax (818) 843-7834.

A New Breed of Panther

Panther presents its new dolly — the Evolution — which is constructed so as to be carried in one piece. The transport weight is 96 kg. (210 lbs), 48 kg. (105 lbs) per person. A specially designed transport cart can be used for longer distances. The Evolution has a patented crab/steer shiftbox allowing the steering wheels of a camera dolly to be turned 360 degrees. The Evolution has a new maintenance-free, brushless motor with a new digital electronic system.

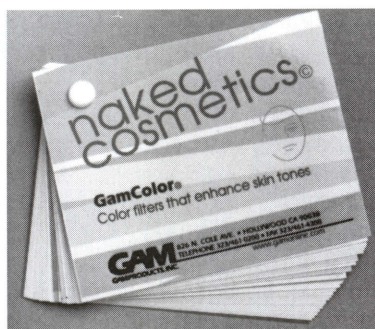
Panther, (49) 89-6139-0011, fax (49) 89-613-1000.

Panavision Playback

Panavision introduces their new portable digital solution DVAP (Digital Video Assist Playback). This PC-based system provides the tools (under software package SamCineWare 1.0) necessary to facilitate a comprehensive studio production. Weighing 12 kg., the DVAP is a compact system based on a 233Mhz Pentium MMX processor with a 12.1" color TFT display. The mouse-driven application software incorporates familiar features from Panavision's existing playback systems. The in-house designed SamCineWare 1.0 software offers a variety of video-assist tools, such as MatchMaker (mixing facility), variable-speed playback (up to 250 fps), Animation, Chromakey, ClipMaker (non-linear editor), Samhancer (video processing), an Auto Slate/Take Generator, and Time-Lapse. The new system will also download to Jaz drive for high-speed backup and/or a convenient videotape recorder. Other advantages of the system include stereo recording, Speed Aperture Computer simulation (variable speed with time adjustment), and remote control. The portable DVAP can capture

images in both PAL and NTSC and is equipped with a universal power supply for use in Europe and the United States. It will store up to two hours of color video clips, and the database provides information about each captured video clip. DC operation covers the range 10-30V and the DVAP can also be operated from a car cigarette-lighter socket. It does not require pre-roll and can capture and play back video clips with ease and speed. Reverse play, frame-line generation, reverse scan and 'noise barless' variable speed are accessible and available on location. The DVAP is also a production tool for video playback operators with built-in test facilities, a switching matrix, with help and tutorial options. The portable DVAP also allows video clips to be edited and downloaded directly into bespoke digital edit suites.

Panavision London, (181) 839 7333, fax (181) 839 7300




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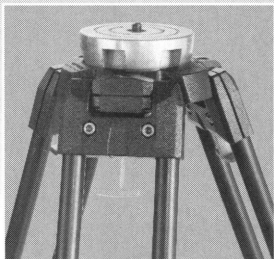
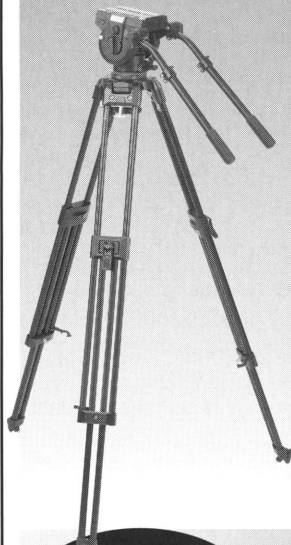
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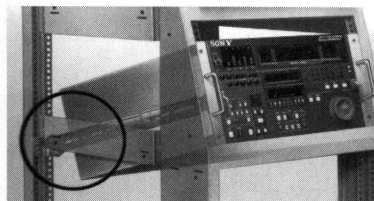


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kits that feature specific units built to manufacturers' specifications for Panasonic, JVC and Sony VCR models. The kit features include large chrome handles with heavy-duty brackets, slides with smooth-riding Accuride ball-bearing action, and extra-strong chassis support brackets. The slide mechanism has a special adjustable pivot mounting bracket at the rear; this pivoting rear bracket allows the slide bar to be mounted into sloped sections of rack modules without modifying existing brackets to fit various slope angles. Winsted also has a full line of components for the kits including several shelf styles. The newest accessory is a folding cable carrier that keeps cables organized and neatly packaged when pulling the electronics in and out.

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Russound introduces Smart Select Volume Control, a microprocessor-controlled device that integrates Russound's UltraMatch impedance matching control technology with multi-zone automation functionality, eliminating the need for a separate impedance matching speaker selector. The microprocessor controls the volume's output level as well as room on/off functions. With a few simple calculations and jumper settings, the SSVSC can be configured for as many as 12 sets of speakers connected to a single amplifier, making it suitable for commercial and residential applications. An easy-to-read three-color LED status indicator provides a quick visual check of the installation. A touch of the "All Rooms" button on any Smart Select Volume Control will activate or deactivate speakers throughout the house. Its unobtrusive adjustment knob allows easy volume modification and

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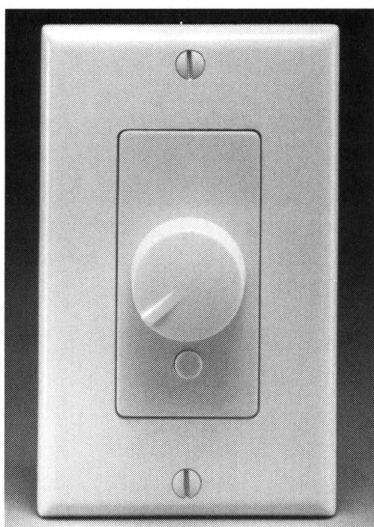


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quick visual setting indication for a particular room. The 12-step Smart Select Volume Control provides up to 43dB of attenuation and can handle up to 126 watts (42 VRMS per channel) with a frequency response of 20 to 20,000, +1, -5dB. The SSVC requires the use of Russound's Power Interrupter Module or the company's Smart AC Power Controller, which provides a total of eight 110v AC outlets (2 non-switched, 4 switched, and 2 switched) with individual time delays. It also provides a



switched 12v DC output that can be employed to control other devices or integrate with other home automation products. When coupled with the company's optional Smart AC Power Controller module, the SSVC can turn source equipment on or off; with a Russound IR repeater added to SSVC and Smart AC, a user can control on/off operation as well as function and mode of source components from any Smart Select Volume Control. The Russound Power Interrupter module — along with a power supply such as Russound's 1201A — combines with the SSVC to provide a basic system operation without controlling source equipment. This unit fits in a standard 20" cubic J-box.

Russound, (800) 638-8055, fax (800) 915-5519.

Plus 8 Ups the Ante

Plus 8 Video has enlarged its inventory to encompass the Panasonic

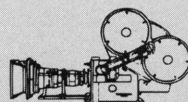


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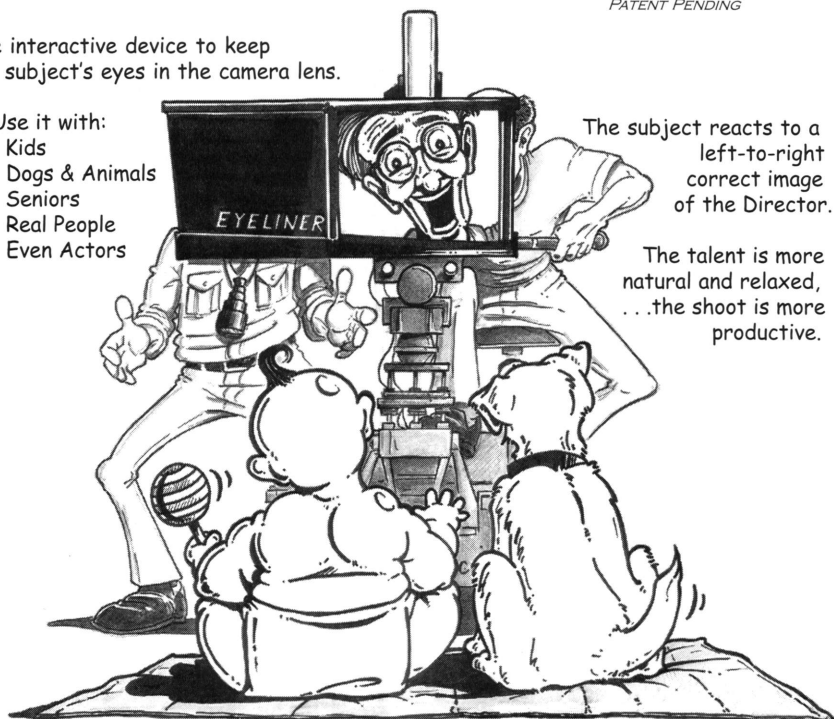
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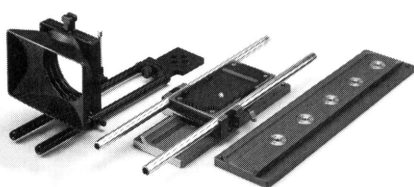
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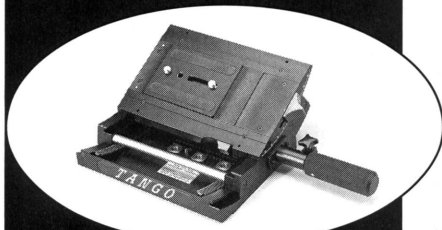
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Points East

Moving Through Imaging History

by Eric Rudolph

A delightful surprise awaits film fans willing to stray from the beaten path in New York City. The American Museum of the Moving Image, located 2½ miles east of midtown Manhattan in Astoria, Queens, should thrill anyone interested in movies and how they are made. The camera display alone is enough to warrant a trip by those curious about or involved in cinematography.

Imagine spending a few hours wandering through a time machine of cinematic history, starting with a peek through the viewfinder of a hand-cranked, circa-1910 Pathé 35mm movie camera. Topped with its rectangular film magazine, the Pathé is still a familiar icon of the early silent era.

Next to several of the key movie cameras in the museum's display of 18 vintage models are television monitors that play clips from Karl Makames's *The Motion Picture Camera*, which shows in detail the inner workings of the various film transports and other salient features. Highlighted are the famous round Akeley "Pancake" camera (a model used by renowned documentarian Robert Flaherty to shoot *Nanook of the North* and *Man of Aran*), and a Debie Parvo Model L (the camera used to film such silent-era epics as Sergei Eisenstein's *Battleship Potemkin* and Abel Gance's *Napoleon*).

Also on hand is a Mitchell VistaVision Model 54, with its large side-by-side film take-up and supply housings; similar horizontally fed spherical widescreen cameras were used to make *Vertigo* and *The Ten*

Commandments.

Nearby, but light years away in concept, is a Bolex Super 8 S-8 home movie camera, complete with a synced audiocassette recorder improbably attached to its side in a metal housing. NBC's New York affiliate experimented with this hybrid in the mid-1960s in an attempt to reduce the weight and cost of 16mm single-system sound news gathering.

A display of exhibition equipment includes a 1927 Western Electric Vitaphone 35mm Universal Base projector, complete with synced disk player. This is the system that made the early talkies sing.



Left to right: Debie Parvo (1908), Bell & Howell Studio Model B (1912), unidentified, Pathé Professional 35mm (1910).

In another area of the exhibit, new tools stand alongside the old. A Silicon Graphics workstation, on which demonstrations of CGI work are given, is set up near one of its predecessors — a large RGA/Oxberry Compuquad Effects Stop Motion optical printer, a state-of-the-art visual-effects machine from the pre-CGI 1980s.

Elsewhere, a bank of television monitors simulates a television director's

viewpoint, playing segments of a Yankees game and *Late Night With Conan O'Brien* from the various cameras' viewpoints. Viewers listen and watch as the directors choose and arrange their shots. The *O'Brien* segment is particularly amusing, as energetic director Liz Plonka cajoles and praises her camera operators, swears colorfully and laughs out loud at the mugging, quipping O'Brien.

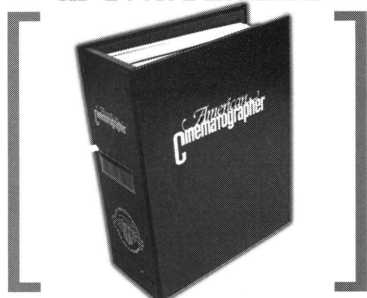
Other highlights at the American Museum of the Moving Image include a huge '50s-era RCA color television camera with swooping futuristic styling and a full prime-lens turret; an exhibit explaining present-day television's curious predecessor — mechanical television, which actually broadcast programming in the 1920s; and a 1927 Bell picture-phone with 50-line resolution, which is housed in a wooden cabinet about the size of a modern photographic mini-lab.

There are also interactive kiosks on animation, ADR and film-to-television pan-and-scan techniques. Others offer the museum's proprietary descriptions and images of 201 careers in the moving-image fields. Extensive makeup and prosthetics displays feature the actual masks and animatronics seen in many famous films.

The museum also boasts a startling full-sized mechanical figure of Linda Blair created by makeup maestro Dick Smith for the head-spinning scene in *The Exorcist*, which sits next to a large miniature of the imposing black Tyrell pyramid from *Blade Runner*.

After all of this stimulation, visitors might be ready for a TV break. Downstairs is most of the Monk's Cafe set from *Seinfeld*. Surprisingly small and well-worn, much like a real Upper West

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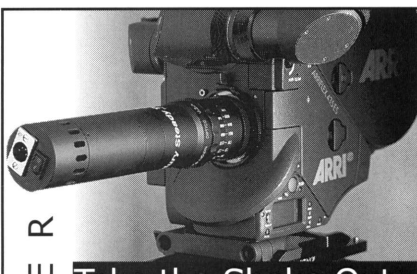
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Side coffeeshop, the set will be at the American Museum of the Moving Image only until late 1999.

The *Seinfeld* exhibit focuses on series co-creator Larry David's contributions, noting that David's acerbic, neurotic worldview (embodied onscreen by the character George Costanza) gave the show its distinctive voice.

Spiral notebooks containing David's ruminations on possible show themes, as well as his handwritten drafts of scripts for the well-known episodes "Parking Garage" and "The Kiss Hello," are on view. Also displayed are Jerry's famous Puffy Shirt, Kramer's '50s-era clothing, an example of Elaine's early thrift-store-chic wardrobe, George's Michelin Man-style down jacket, and Newman's U.S. Postal Service uniform.

The attractions listed above, however, are only a smattering of the sights and sounds on display at the American Museum of the Moving Image — the only museum of its type in the United States, according to director David Schwartz. "The Smithsonian Institution in Washington has a lot of film and television equipment, but most of it is in storage," says Schwartz. "Our production gear is on permanent display."

Does anyone who isn't involved in the film or television industry really want to look at vintage production gear? "I'm always surprised at how interested people are in seeing the equipment," Schwartz explains. "Some just look at it as sculpture; others stand there and have a great time figuring out how it works. I enjoy helping people understand how movies are a mechanical art form, especially because that is starting to change. We also treat all of the equipment like artwork — sculpture which, when combined with the interactive exhibits, tells a story."

The facility also serves as the site of instructive seminars and screenings, and such ASC members as Gordon Willis, Sven Nykvist, Vilmos Zsigmond, Vittorio Storaro and Haskell Wexler have lectured and shown their work in the



RCA Color TV Camera (1954).

museum's Master Cinematographers series. Plus, every weekend, four classic films are projected for the public in the museum's 200-seat theater. "We always try to show films in their original format," Schwartz explained to this reporter as *The Misfits* unspooled in the theater nearby. "We're screening *Reflections in a Golden Eye* this weekend, and it is an original Technicolor print."

The museum is surrounded by the sprawling Kaufman Astoria Studios complex, a busy six-stage production facility that dates back to the silent era. Rudolph Valentino, W.C. Fields and the Gish sisters all made films at the Astoria stages, beginning in the 1920s, as did the Marx Brothers during the early talkie years. Films shot at Kaufman Astoria since its early-'80s reopening include *The Age of Innocence*, *Ransom*, *The First Wives Club*, *Scent of a Woman* and several of Woody Allen's films.

In fact, the American Museum of the Moving Image itself was actually a lab and editing facility during the Astoria complex's days as a Paramount studio. This history hints at the reason why such a unique museum is located in Queens, a short subway ride from the bustling media epicenter of Manhattan. "I think it is important that we are out here surrounded by an active film and television studio complex," Schwartz says. "It gives the feeling of being on a studio lot, which adds to the experience of visiting a museum devoted to the movie business." ■

Global Village

UNESCO's Aquatic Plea

by Christopher Probst

Given television's categorical incursion into homes of every nation, the medium has the potential to influence viewers worldwide. The United Nations Educational Scientific and Cultural Organization (UNESCO) therefore felt that a television spot would be the ideal way to spread the word about its ecological campaign, The International Year of the Ocean.

Of course, as many charitable organizations often discover, funding for such worthy endeavors can be scarce or even nonexistent. But when Australian-based advertising agency Leo Burnett Connaghan & May approached Gas Films producer Dave Kelly and director Franco Marinelli, the duo were impassioned to realize UNESCO's cautionary plea for our oceans.

The resulting spot, "Sharkfin," begins with an idyllic image of the ocean's inhabitants flourishing in a serene, crystal-clear aquatic utopia. However, with a nod to *Jaws*, the PSA informs us that all is not well in the undersea world. As the viewer catches a glimpse of what appears to be an ominous dorsal fin submerging into the depths, a voice-over intones, "Contrary to popular opinion, the ocean's greatest killer is not the great white. The ocean's greatest killer is man." We see several varieties of marine life scurry away from the foreboding shadow of this lurking menace as it passes overheard. Eventually, the "shark fin" is shown to be a triangularly-shaped garbage bag polluting the otherwise pristine environment.

Despite the fact that the PSA had virtually no budget and offered no pay to its crew, Marinelli was able to assemble an A-list team to realize the spot. Among these seasoned professionals was

Sydney-based director of photography Roger Buckingham, ACS, who specializes in underwater cinematography. In fact, Buckingham was actually drawn to photography by his love of surfing. "I actually got involved with photography and film through my interest in trying to capture some of the moments that you see when you're surfing," relates Buckingham. "Surfing initially led to an interest in photography, and then cinematography."

Says producer Dave Kelly, "Our main objective from the onset was to create a commercial that was not only distinct in style, but that was also completely void of any of the characteristics that are often prominent in commercials produced with a next-to-nothing budget — which, unfortunately, is a familiar domain for community service announcements and charity commercials."

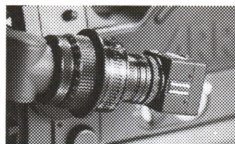
Notes Buckingham, "Originally, due to cost considerations, the agency was considering shooting on 16mm. However, I have my own 35mm equipment and wasn't too keen on shooting on 16mm. Fortunately, we were able to scrape together a few 35mm rolls [of Vision 500T 5279], which made the project far more attractive from my point of view, particularly in terms of putting together the best spot that we could. Obviously, we had certain budgetary limitations because it was a charity job, but Franco was really determined to strive for quality. In the end, he put together a fine spot, and I was very pleased with the result."

Fortuitously, Buckingham had recently acquired an Arriflex 435ES for which he'd constructed a custom underwater housing. "The UNESCO spot was one of the first jobs on which I used

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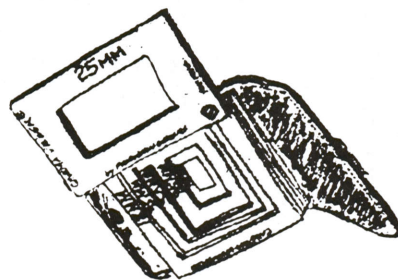


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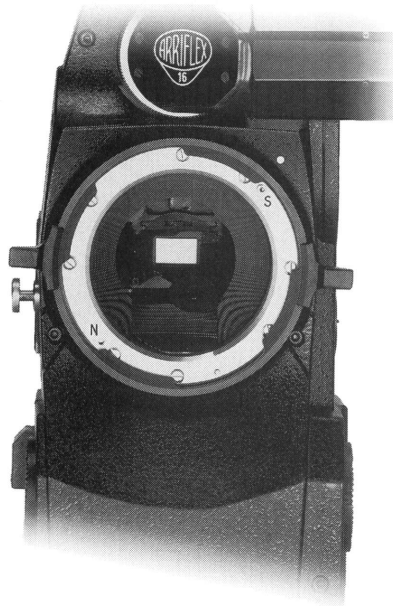
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the 435 underwater housing," he submits. "The 'Sharkfin' spot was a great opportunity to use some of the features of the 435, such as speed-ramping, which we used to [accelerate the movement] of the fish scattering away from the shadow. I've designed my housing so that it can take the RCU's [remote control unit's] signal from the surface; I can also preprogram a ramp to the internal memory of the camera before I go underwater, and then access that ramp in the housing while underwater. By doing that, we have one less cable to the surface, which helps simplify things. I think this spot marks the first time I've done a speed-ramp underwater."

The commercial was shot in blacked-out tanks at the Ocean World aquarium in Sydney, and on the sea itself for shots that break the surface of the water. "I used a mixture of above-water lighting and underwater units," recounts Buckingham. "We blacked out all of the ambient light from the sun and then just used a 10K as our sun. If you position a single big light source from above the water and then ripple the water enough, you can't tell it's a light — it just looks like the sun. All of the lighting effects were done in-camera, so it was a lot of fun setting up a lighting design to create an ominous shadow moving across the ocean floor. If a real [fin shadow] were to cut off the 'sun' above the water, everything would just be black and you wouldn't be able to see anything. From underneath, I used a 1.2K HMI Par unit for fill, and I kept the light level down so that it wouldn't distract from the darkness and make it look lit."

"The Par light was slightly diffused, but we were controlling it to only light a specific area while keeping it off the background. We were also helped by the fact that the fish we used were quite silvery; when they turned toward the light, they picked up a direct reflection. Half of the secret of underwater photography is the choice of lens that you use to make the image look sharp and clear. You mainly work with wide-angle lenses, but the exact focal length is dictated largely by the clarity of

the water."

The most difficult shot during the tank work was the spot's "product" shot of the garbage bag. When the flotsam is revealed, we see the murky waste within as the camera pushes forward. "That shot that took the longest to execute, and required the most people in the water," says Buckingham. "It was quite involved, and it took a number of people to get a realistic effect of garbage spewing out of the bag. We had wranglers for the garbage, as well as people in the water for the lighting. I lit that shot exclusively with mirrors bouncing sunlight."

The remaining shots that break the water's surface were then filmed off the Sydney coast. These presented some all-too-familiar challenges resulting from the unpredictable oceanic environs. "We had very some rough seas for two days while shooting in the ocean, and at one point we almost lost some of the video-monitor equipment," the cinematographer remembers.

The difficulties of sub-aquatic shooting and the vagaries of weather notwithstanding, Buckingham feels optimistic about the future of underwater photography. "The technological advances made in recent years have really started to make underwater lighting a much more creative area," says the cameraman, who recently landed second-unit gigs on the feature film *Matrix* and the ever-popular television series *Baywatch*. "Even up to a couple of years ago, nothing really existed on the market for underwater lighting. Now, there are a whole variety commercially manufactured fixtures, such as Kino Flo's new underwater fluorescents. Underwater photography is an area where you can really get an interesting look, especially on commercials. I did an underwear spot a year ago where [the agency] wanted live models to seem as if they were floating in space. We basically did an underwater fashion shoot in front of a bluescreen. It was a very interesting spot to shoot and a real challenge to light." ■

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Books in Review

by George Turner

Robert Siodmak

by Deborah Lazaroff Alpi
McFarland, 412 pps.,
library binding, \$55

Robert Siodmak (1900-1973) ranks high among the brilliant pictorial stylists who brought ideas from German Expressionism to the United States and successfully melded them into American cinematic tradition. He never became as renowned as Fritz Lang or the German-influenced Briton Alfred Hitchcock, but his best work is on par with either of these masters. Siodmak was a particularly strong influence in the Forties during the flowering of that particular form of moody drama now known as film noir.

Although Siodmak has been profiled in numerous articles in English and American books and magazines, and larger works in Europe, this is the first large-scale study done in English. The author provides a biographical study and comprehensive coverage of Siodmak's moviemaking: his pre-directorial efforts in Germany, which began in 1927; his decade of successful directing in the Berlin studios; his rise through the B-picture ranks in America to a recognized mastery of film noir; and his later decline in Europe. Far greater emphasis is placed on his noir films than the others, with good reason — he did his best work in that genre.

Siodmak's noir works are strong on suspense, feature great photography, and are notable for being cast against type: *Phantom Lady* retells the William Irish novel with Franchot Tone as a paranoid killer; *Christmas Holiday* has fine dramatic performances from musical comedy stars Deanna Durbin and Gene Kelly; in *The Suspect*, Charles Laughton portrays a sympathetic murderer; *The Strange Affair of Uncle Harry* features

George Sanders as a small-town introvert; *The Spiral Staircase* includes Dorothy McGuire as a mute girl and George Brent as a serial killer; *The Dark Mirror* offers Olivia DeHavilland as good and bad twins; *The Killers* introduces Burt Lancaster as a doomed ex-gang member; and *The File on Thelma Jordan* plays up a lethal Barbara Stanwyck. All of these pictures are covered in admirable detail in Alpi's book, which also includes cast lists, credits from Siodmak's 56 films, and a fine bibliography.

Screams of Reason

by David J. Skal
W.W. Norton, 368 pps.,
hardback, \$29.95

Subtitled *Mad Science and Modern Culture*, David Skal's latest venture into the dark side of the movies deals with the perennial villains of imaginative melodramas — mad scientists — and provides an amusing and chilling odyssey. The author even parallels these fictitious fiends with some real-life counterparts, such as the Unabomber. In fact, some of the ideas conceived by the screen's nutty scientists have proven quite prescient. Skal notes, for example, that Dr. Jean Rosenbaum of New Mexico came up with the idea for inventing the cardiac pacemaker from the 1931 movie *Frankenstein*.

Science-fiction and horror films are wisely considered together, in recognition of their close relationship. The most famous balmy (or, at least, bemused) scientists of literature and cinema — Frankenstein, Dr. Jekyll and Mr. Hyde, Jack Griffin (the Invisible Man) and Dr. Moreau — are given the royal treatment; lesser savants such as Drs. Thorkel (Cyclops), Mirakle, Gogol and Xavier step briefly into the spotlight.

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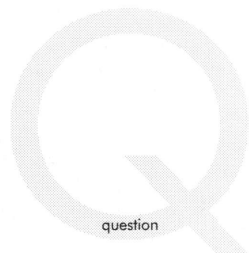
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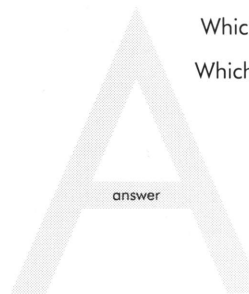
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The author makes the sensible point that the fictional mad scientist is a necessary steam valve for a populace increasingly bombarded by deranged science in its everyday life. Skal's writing skill and a well-established penchant for meticulous research are evident throughout this well-illustrated tome.

Twentieth Century's Fox

by George F. Custen

Basic Books, 435 pps.,

paper, \$27.50

The mere mention of Darryl F. Zanuck conjures up vivid images memories of the notoriously abrasive, jodhpur-wearing martinet who ruled Twentieth Century Fox with a polo mallet, tough language and an iron fist. Add to the lore some embarrassingly public romantic entanglements and it's plain to see why he was never accorded the acclaim or "good press" given to Irving Thalberg or David O. Selznick. The fact that Zanuck probably contributed more important innovations to the movies than any of his more smooth-edged rivals is convincingly set forth in this new biography.

Custen details Zanuck's days at Warner Bros., where he produced the most influential early sound film (*The Jazz Singer*), and started the cycle of hard-hitting gangster pictures (*Little Caesar*, *Public Enemy*), social problem exposés (*I Am a Fugitive from a Chain Gang*), more virile musicals (*42nd Street*), and prestigious biographical films. He later ran his own company, Twentieth Century, which merged with Fox Film to create one of the world's largest studios, where he produced many outstanding pictures. As a starmaker, he initiated or furthered the careers of James Cagney, Edward G. Robinson, Barbara Stanwyck, Shirley Temple, Tyrone Power, Betty Grable and many others. Zanuck's provocative life makes for quite good reading. ■

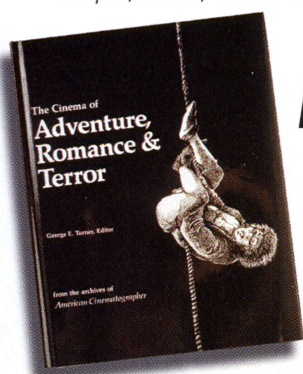
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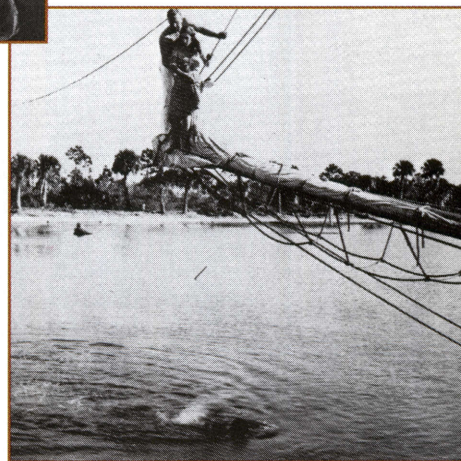
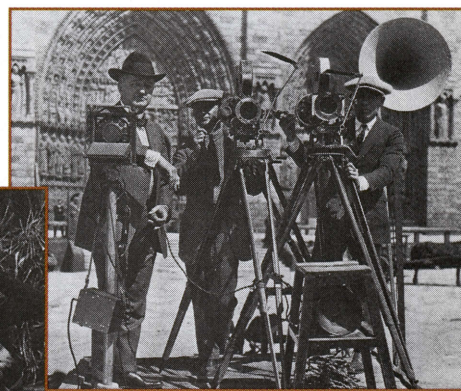
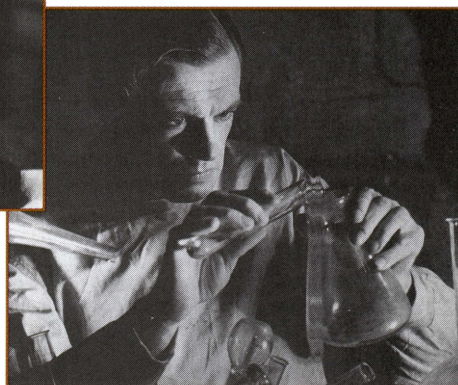
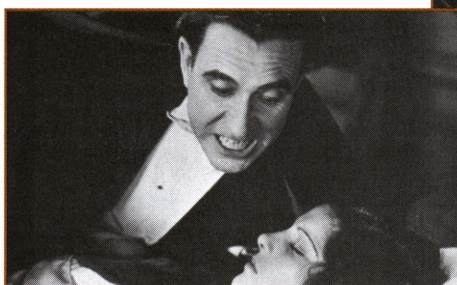
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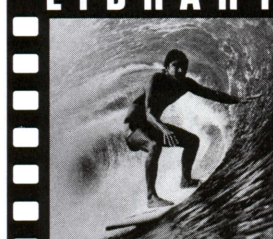
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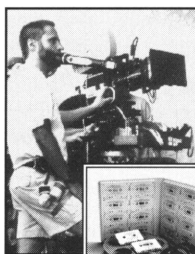
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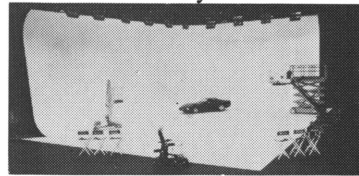
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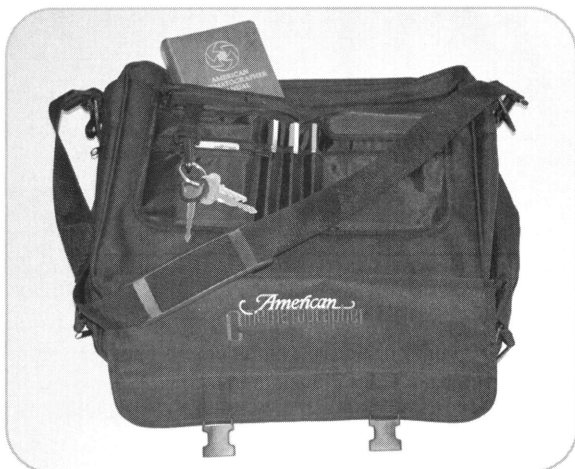
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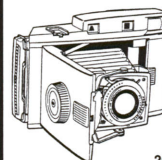
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events that bring people together, such as the opening night feed and a variety of free seminars, and each of the theaters has its own charm and character. It's exhilarating to lie on a blanket in the middle of the town park at the open-air cinema, watching a film while gazing at the stars, or to sit within the Sheridan Opera House, a building that dates back to the area's historic silver-mining days.

Admirably, the festival has consistently acknowledged the influence that cinematographers have had on motion pictures. In addition to its early tribute to John Alton, Telluride has also honored such ASC cameramen as Sven Nykvist and Karl Struss. This year, Vittorio Storaro, ASC, AIC was saluted with the festival's silver medallion and a screening of his new film *Tango*. When Storaro took the stage to accept his award and speak about his career, I was reminded of the intensity and passion I had felt during that early seminar with Mr. Alton. It was thrilling to see an enormous group of people moved by the manner in which Storaro spoke about his career and the influence that cinematography has had on motion picture history.

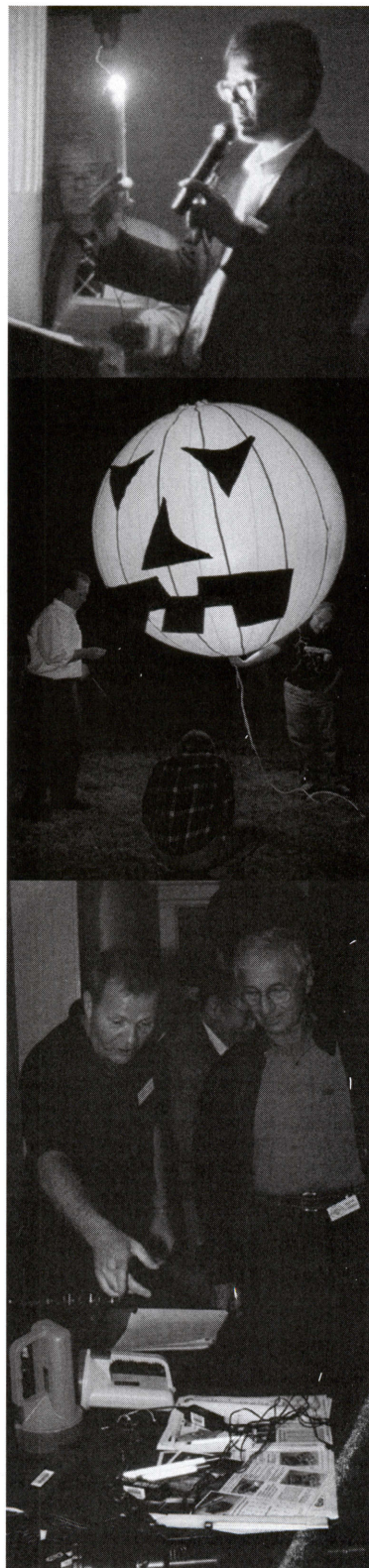
Through the years, the Telluride Film Festival has remained admirably true to its purpose by offering the richest and most vibrant films of the past and present in an all-encompassing celebration of the art form. When Mr. Storaro was asked where he finds the energy to continue his career, he replied simply, "It's my whole life, my passion." It's this same feeling of passion that continues to make Telluride a delightful experience year after year. ■

Douglas Glover is a Los Angeles-based cinematographer.

From the Clubhouse

Spooky Happenings Highlight ASC Meeting

The October 26 ASC dinner meeting, held at the Hollywood Clubhouse and hosted by Willy Kurant, ASC, followed a distinct Halloween theme and featured demonstrations of lighting instruments designed for low-key and special-effects illumination. Xenotech, Peak Beam Systems, Kino Flo and LP Associates, Inc. displayed several new flashlight systems -- ranging from piercing beams to soft, focusable lamps -- while Lightning Strikes debuted the Firefly, a programmable 5/40K source/flicker generator that lit up the Clubhouse interior with near-blinding discharge effects. Nocturn and Wildfire both offered a wide array of fluorescent paints and ultraviolet lamps, with the latter company unveiling their new hot-restrikeable 600W UV fixture. A variety of candlelight-effect options were offered by Rosco and Kino Flo, while Oregon-based Magic Gadgets impressed the audience with over a dozen different lamps and programmable flicker generators. ■



Lefthand column, from top: Great American Market owner and ASC associate Joe Tawil created some eerie effects with the company's Scene Machine projector; Charles Libin, the co-inventor of Arriflex's new Ruby 7 multi-Par lamp. Righthand column, from top: Observed by event coordinator Willy Kurant, ASC, associate member and Kino Flo president Frieder Hochheim demonstrates the use of a Micro Flo tube and flicker generator to create a candlelight effect; a helium balloon is given an appropriate seasonal treatment; ASC members Francis Kenny and Victor Kemper check out a variety of new flashlights and lamps on display in the Clubhouse.

Photos by David E. Williams.

Filmmakers' Forum

Telluride Festival Mines Cinema's Mother Lode

by Douglas Glover



Festival attendees jam the streets of Telluride.

In late summer of 1993, I paid my first visit to the Telluride Film Festival during the event's 20th anniversary. At the time, I was a student learning about cinematography, and I was attending as part of a symposium. When I received my schedule of films and lectures on the first day, I was excited to see that the festival would be paying tribute to a cinematographer named John Alton, and that he would be appearing before my class for a discussion. Back then, I had no idea who John Alton was, and I hadn't even seen any of the films he'd photographed. During his lecture, I realized that the man before me was one of the great film noir cinematographers from the 1930s and '40s. He had been out of the public eye since his retirement in the early Sixties, but had come out of seclusion after accepting an invitation to attend a screening of the cinematography documentary *Visions of Light*. After 30 years, he was now sharing his considerable knowledge and expertise in Telluride. The passion and intensity that this 91-year-old man conveyed to us while

discussing his art and the cinema paved the way for what this festival would mean to me and other visitors for years to come.

The advent of 1998 marked the 25th anniversary of the Telluride Festival, which is held in a small silver-mining town within a deep canyon in southwestern Colorado. A quarter-century ago, a small group of film buffs crammed themselves into the Old Sheridan Opera House, joining festival guests Leni Riefenstahl and Francis Ford Coppola for the inauguration of this annual treat. Each year since then, the festival has welcomed an impressive procession of cinematic artists, ranging from Abel Gance to Jimmy Stewart to Robin Williams. The screenings have been just as diverse, including offerings from countries all over the world — some films fresh from the lab, and others a century old. This eclectic selection is one the great things about the festival; recent pictures that have made their U.S. debut at Telluride include such gems as *The Sweet Hereafter*, *Blue*, *The Joy Luck*

Club, *Kolya*, *Men With Guns*, and *Breaking the Waves*. Equally impressive is the list of restored films that the festival has culled from our cinematic history: *Point Blank*, *The Narrow Margin*, *The Hard Way*, *T-Men* and *Touch of Evil*.

Telluride has also paid homage to the wonders of the silent-film era. Beautifully restored classics such as Dziga Vertov's *The Man With the Movie Camera*, Buster Keaton's *Steamboat Willie* and Sergei Eisenstein's *Strike* have been screened to the accompaniment of the Alloy Orchestra, a three-piece ensemble which masterfully combines an array of instruments to revive rare scores or give new life to classic films by composing completely original music.

Since its inception, the festival has grown from a small group of people and one theater to a large group of pass holders that consistently sell out the town's six theaters. The strong sense of community makes those who attend feel as if they're part of a unique group rather than a crowd. There are wonderful daily

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